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GEOGRAPHY & INDUSTRY

The EDISON ELECTRIC INSTITUTE BULLETIN

In Two Sections — Section 1

September 1955

Published Monthly by Edison Electric Institute

A Privileged Class for America

Harllee Branch, Jr.

Waste In Water

Adm. Ben Moreell

Forward Course of the Electrical Industry

Dr. A. E. Grauer

Analysis of Industry's Five-Year Accident Experience

G. E. Watkins

EEI Prize Awards Competition

ELECTRICAL RESEARCH STATISTICS
THE ELECTRIC LIGHT AND POWER INDUSTRY

Current Statistical Data Covering 100 Per Cent of Industry

(Includes Investor-Owned Companies, Cooperatives, and Government-Owned Utilities)

June, 1954-1955

SOURCE AND DISPOSAL OF ENERGY—MONTH OF JUNE

	1955	1954	%
NET GENERATION* (Kwhrs in Thousands)			
By Fuel Burning Plants	34,525,154	29,380,533	+17.5
By Water Power Plants	9,709,237	9,588,262	+ 1.3
Total Generation	**44,234,391**	**38,968,795**	**+13.5**
Add—Net Imports Over International Boundaries	289,559	134,014	.....
Less—Company Use	122,922	128,920	− 4.7
Less—Energy Used by Producer	1,028,796	942,022	+ 9.2
Net Energy for Distribution	**43,372,232**	**38,031,867**	**+14.0**
Lost and Unaccounted for	4,521,442	4,868,000	− 7.1
Sales to Ultimate Customers	**38,850,790**	**33,163,867**	**+17.1**

CLASSIFICATION OF SALES

NUMBER OF CUSTOMERS—As of June 30			
Residential or Domestic	43,744,742	42,482,870	+ 3.0
Rural (Distinct Rural Rates)	1,634,238	1,635,700	− 0.1
Commercial or Industrial:			
Small Light and Power	6,044,257	5,945,087	+ 1.7
Large Light and Power	283,637	276,486	+ 2.6
Other Customers	168,358	162,367	+ 3.7
Total Ultimate Customers	**51,875,232**	**50,502,510**	**+ 2.7**
KILOWATTHOUR SALES—During Month of June (Kwhrs in Thousands)			
Residential or Domestic	8 974,665	8,163,043	+ 9.9
Rural (Distinct Rural Rates)	957,901	945,158	+ 1.3
Commercial or Industrial:			
Small Light and Power	6,586,236	6,001,810	+ 9.7
Large Light and Power	20,778,214	16,601,500	+25.2
Street and Highway Lighting	295,929	273,214	+ 8.3
Other Public Authorities	836,546	768,935	+ 8.8
Railways and Railroads:			
Street and Interurban Railways	194,864	200,223	− 2.7
Electrified Railroads	174,677	159,456	+ 9.5
Interdepartmental	51,758	50,528	+ 2.4
Total to Ultimate Customers	**38,850,790**	**33,163,867**	**+17.1**
Revenue from Ultimate Customers (Thousands)	**$647,704**	**$587,689**	**+10.2**

RESIDENTIAL OR DOMESTIC SERVICE

AVERAGE CUSTOMER DATA—For 12 months ended June 30, 1955			
Kilowatthours per Customer	2,649	2,442	+ 8.5
Average Annual Bill	$70.73	$66.18	+ 6.9
Revenue per Kilowatthour	2.67¢	2.71¢	− 1.5

* By Courtesy of the Federal Power Commission.

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The objectives of the Edison Electric Institute are:

The advancement in the public service of the art of producing, transmitting, and distributing electricity and the promotion of scientific research in such field.

The ascertainment and making available to the members and the public of factual information, data, and statistics relating to the electric industry.

To aid its operating company members to generate and sell electric energy at the lowest possible price commensurate with safe and adequate service, giving due regard to the interests of consumer, investor, and employee.

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The EDISON ELECTRIC INSTITUTE BULLETIN

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CONVENTIONS AND MEETINGS

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3- 4 EEI Wiring and Specifications Committee, EEI Headquarters, New York, N. Y.

3- 4 PEA Hydraulic Power Committee, Skytop Lodge, Skytop, Pa.

3- 5 EEI Meter and Service Committee, Hotel Syracuse, Syracuse, N. Y.

3- 5 EEI Prime Movers Committee, Hotel Cleveland, Cleveland, Ohio.

3- 7 AIEE Fall General Meeting, Morrison Hotel, Chicago, Ill.

5 PIP Inter-Regional Committee, 10:00 a.m., Chase-Park Hotel, St. Louis, Mo.

5- 7 Indiana Electric Association Annual Convention, French Lick Spring Hotel, French Lick, Ind.

5- 7 Missouri Valley Electric Association Sales & Rural Conference, President Hotel, Kansas City, Mo.

5- 7 PIP Workshop Conference, Chase-Park Plaza Hotels, St. Louis, Mo.

6- 7 PEA Communications Committee, Hotel William Penn, Pittsburgh, Pa.

10-12 EEI Area Development Workshop, Sheraton Hotel, St. Louis, Mo.

10-11 Iowa Utilities Association 8th Annual Management Conference, Hotel Fort Des Moines, Des Moines, Iowa

12-14 Wisconsin Utilities Association, Electric & Gas Section, Schroeder Hotel, Milwaukee, Wis.

13 Oklahoma Utilities Association Eastern Electric Light & Power Division, Okmulgee, Okla.

14 Oklahoma Utilities Association Western Electric Light & Power Division, Norman, Okla.

17-18 EEI Electrical Equipment Committee, Shoreham Hotel, Washington, D. C.

17-18 27th Annual Boston Conference on Distribution, Hotel Statler, Boston, Mass.

17-19 Joint Meeting AGA 37th Annual Convention and Pacific Coast Gas Association 62nd Annual Convention, Statler, Ambassador and Biltmore Hotels, Los Angeles, Calif.

20 National Industrial Conference Board Meeting of Board Members, Waldorf-Astoria Hotel, New York, N. Y.

20-21 PEA Prime Movers Committee, Clearfield, Pa.

20-21 Southeastern Electric Exchange Accounting Conference, Hotel San Carlos, Pensacola, Fla.

21 Oklahoma Utilities Association, Meeting of Accounting Section, Lawton, Okla.

24-26 37th Annual Meeting ASA and 6th National Conference of National Bureau of Standards, Shoreham, Washington, D. C.

24-27 NARUC 67th Annual Convention, Grove Park Inn, Asheville, N. C.

26-28 National Industrial Conference Board Special Atomic Energy Conference, Waldorf-Astoria Hotel, New York, N. Y.

27-28 PEA Electrical Equipment Committee, Hotel New Yorker, New York, N. Y.

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27-28 Southeastern Electric Exchange Sales Conference, Biltmore Hotel, Atlanta, Ga.

31-Nov. 1 EEI Accounting Division Advisory and Executive Committee, Hotel Statler, Detroit, Mich.

31-Nov. 1 PEA System Planning Committee, Pocono Manor Inn, Pocono Manor, Pa.

NOVEMBER

3- 4 EEI-AGA Taxation Accounting Committee, Plaza Terrace, Cincinnati, Ohio

3- 4 Pacific Coast Electrical Association Business Development Section, Huntington-Sheraton Hotel, Pasadena, Calif.

9-10 Pacific Coast Electrical Association, Conference Hawaiian Section, Honolulu

10-11 Pacific Coast Electrical Association Hawaiian Conference, Reef Hotel, Honolulu, Hawaii.

13-18 ASME Diamond Jubilee, Congress-Hilton-Blackstone Hotel, Chicago, Ill.

14-16 EEI Accident Prevention Committee, Beaumont Hotel, Beaumont, Texas

16-17 Pacific Coast Electrical Association Administrative Services Section, Hotel California, Fresno, Calif.

17-18 EEI Industrial Relations Committee, Joint Meeting with New England Personnel Group, Somerset Hotel, Boston, Mass.

DECEMBER

1- 2 EEI-AGA 1956 Conference Planning and 1957 Time & Place Committee Meeting, Headquarters, New York, N. Y.

8- 9 EEI-AGA Customer Accounting Committee, Henry Grady Hotel, Atlanta, Ga.

15 EEI Industrial Relations Committee, EEI Headquarters, New York, N. Y.

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JANUARY

16-19 Canadian Electrical Association East Division Meeting, Halifax, N. S.

19 EEI Industrial Relations Committee, EEI Headquarters, New York, N. Y.

30-Feb. 1 EEI Prime Movers Committee, Warwick Hotel, Philadelphia, Pa.

FEBRUARY

2- 3 Missouri Valley Electric Association, Industrial and Commercial Sales Conference, President Hotel, Kansas City, Mo.

2- 3 EEI-AGA Conference Planning, Wm. Penn Hotel, Pittsburgh, Pa.

7- 8 EEI Transmission and Distribution Committee, Warwick Hotel, Philadelphia, Pa.

13-14 EEI Electrical Equipment Committee, Homestead, Hot Springs Va.

20-22 EEI Meter and Service Committee, Hotel Cleveland, Cleveland, Ohio.

The EDISON ELECTRIC INSTITUTE
BULLETIN

A Privileged Class for America

By Harllee Branch, Jr.
President, Edison Electric Institute
An Address before Rocky Mountain Electrical League, Jackson Hole, Wyoming, September 12, 1955

IN 1792 George Logan, a Pennsylvania patriot and friend of Thomas Jefferson, wrote:

"The preference of partial to general interests is the greatest of all public evils."

Americans of that day understood what he meant. They were in the midst of creating on this continent a new nation, freed from the rigid social distinctions and the privileged classes of the old world. They had fought a long and costly war of rebellion against a government which had attempted to impose discriminatory taxes and oppressive restrictions upon them for the benefit of a small but favored group in England. Emerging victorious from that struggle, they had determined to establish in this land a government of laws and not of men—*laws "universal in their operation upon all members of the community."*

Here every citizen should have personal freedom and equality of economic opportunity. None should be exploited for the benefit of another. The responsibilities and burdens of citizenship, as well as its privileges, should be shared by *all.*

Warnings Not Heeded

It is a great misfortune that George Logan's warning against the preference of partial interests—repeated again and again in the writings and utterances of other American patriots—has not been heeded.

For, in 20th Century America, there is a privileged class, nurtured on government subsidies and tax-exemptions

HARLLEE BRANCH, JR.

and growing lustily on preferences and special dispensations which have been written into state and Federal statutes, and even into some state constitutions!

I refer to the tax-supported and governmentally-subsidized power groups which have taken unto themselves the beguiling title of "public power."

A 20 Per Cent Minority

These groups serve a mere 20 per cent minority of the electric consumers of America, but they enjoy important and valuable privileges not granted to the 80 per cent and, in addition, are subsidized by being exempt from taxes which the majority are required to pay as a part of their electric bills.

Spokesmen for the 20 per cent minority have attempted to justify their special privileges upon the basis that they are "publicly" owned, conveniently forgetting that the properties and assets of the tax-paying utility companies are also "publicly" owned and by a much larger portion of the population. The bonds and long-term debt of these companies are owned by many educational and charitable organizations and by institutions such as life insurance companies, pension funds and the like.

The assets of these institutions, in turn, belong to millions of Americans representing every class of our citizenry. It is estimated that 90 million life insurance policyholders, for example, are the indirect owners of electric utility securities. Another four million Americans—from every walk of life, including schoolteachers, farmers, laborers, business and professional workers, and retired men and women—own the common and preferred stocks of the electric utilities. If governmental favors are to be parceled out in America, on the basis of "public" ownership, why should these millions of citizens be passed by?

Hoodwinking Balderdash

"But," say the special pleaders for America's privileged class, "our organizations are 'non-profit' and are needed as 'yardsticks' to keep the utility companies in line." This is sheer balderdash designed to hoodwink the public and no one knows it better, I think, than those who advance such arguments.

The financial subsidies and tax exemptions granted these privileged groups in some instances are used to reduce power rates or to make refunds to their customers, who are also their

owners; and to pay off debts against their properties, thereby automatically increasing the value of their owners' equity. To say that such an arrangement is "non-profit" is a mere play on words. An owner who is paid dividends in the form of reduced power bills or through the enlargement of his investment receives a "profit" regardless of what name is applied to it.

The "yardstick" argument is ridiculous. A utility which is subsidized by the government, which is relieved of charges customarily paid by utility companies and which enjoys other special privileges and prerogatives is, at most, a "yardstick" only for another utility similarly privileged. My company operates in a territory immediately contiguous to that of TVA but no one—not even our most rabid critics—have ever seriously contended in a rate proceeding before our state commission that TVA's subsidized power rates constitute any valid measure of the reasonableness or unreasonableness of our rates or those of any other electric utility in our state.

Not Criticizing Organization

It is not my purpose to criticize the rural electrification program or to question the right or propriety of any group of citizens organizing themselves into municipal electric systems, cooperatives, or public utility districts or any other type of utility organization they desire. My own company happens to be the largest private supplier of power to these groups in America. The rates they enjoy have been consistently among the lowest in the nation. It has been, and continues to be, our policy to assist these organizations in every practicable way. Our policy of cooperation has been reflected in actions going far beyond the ordinary obligations of a power supplier.

My concern is not with the form or organizational setup of these groups but with the inordinate and ever-increasing governmental privileges and subsidies which their customers, representing only a small minority of the electric consumers of the nation, now enjoy at the expense and to the disadvantage of the overwhelming majority of our citizens. In the case of the cooperatives, these privileges go far beyond the modest discriminations initially demanded by them as a means of getting started, and have grown into monopoly rights which none of us would have believed it was possible for any group in this country to obtain. Such monopolistic privileges would be wrong (and they would certainly be condemned by the government-power politicians) if granted to the majority of our people. They are all the more unwarranted when granted to a minority.

A Real "Give-Away"

Many Americans, schooled in the principles of fair play and of equality of economic opportunity before the law, will be shocked to learn the extent to which the 20 per cent minority group has achieved a special status—a sort of statutory citizenship first class, as it were.

The privileges of this group have been achieved in a step-by-step fashion which has concealed their true pattern and growing magnitude from all save the most alert observers. Generally they have been gained while their advocates were loudly charging unfairness, and even villainy, in other quarters—much in the manner of the wolf in the Aesop's fable which devoured the lamb while protesting that the lamb was threatening him.

If congressional investigators are really looking for a *"give-away"* they will find it in the prerogatives and power which have been granted to this minority group.

I regret that time does not permit a detailed catalog of all their special privileges and immunities. Mention of a few of the main ones, perhaps, will serve to indicate the extent to which discrimination is now being practiced against the majority of electric consumers in the interest of the 20 per cent.

No Fair Share of Costs

In the first place, the members of this privileged group do not have to pay in their electric bills their fair share of the heavy costs of the Federal government because they are served electricity by agencies exempt from Federal taxation. Many of them are also relieved of a substantial portion of the local and state tax burdens which are reflected in the price which the 80 per cent majority pay for their electricity.

So-called "tax equivalents" which some pay in lieu of local taxes are, at best, only a partial substitute. These payments are not generally mandatory and are made not on the basis of official assessments as in the case of taxes paid by other citizens, but on the basis of self-assessments which the taxing authorities can neither correct nor compel.

Tax Exemptions

The magnitude of this tax privilege is apparent when one is reminded that today an average of 23 cents out of every dollar collected from customers of the tax-paying electric utilities goes for the support of Federal, state, and local governments. The share of the Federal government alone is 14 cents. In addition, the investors in the securities of electric companies are required to pay Federal and, in many cases, state income taxes on their dividends and interest. In some cases they are also required to pay property taxes on the value of their holdings. These additional taxes raise the total "take" by government to 25 cents out of every electric service dollar.

Not only are local governmental power businesses exempt from Federal income taxes, but the securities for financing these businesses are likewise exempt and can be sold to investors at lower interest rates than electric company securities must pay.

Evaluation of Tax Effect

The late Senator George Norris, author of the TVA Act, in a revealing burst of candor, gave this evaluation of the effect of imposing property taxes on governmental power businesses in a debate on the Senate floor:

> "A proposal from a great association of Tennessee says, in effect, 'Let the TVA property be subject to taxation the same as everybody else's property.' On my desk there is a printed amendment to be offered which provides that all property of the TVA shall be subject to taxation everywhere under the local laws of taxation. *If we go to that extreme, Senators, we can see that the TVA would be out of business in three months.*" (Congressional Record, April 13, 1939, Pages 4213 and 4214.)

Mind you, the Senator was talking only about state and local taxes. Federal taxes were not in the discussion. He may have been consciously exaggerating when he spoke of putting the TVA out of business in three months, but he clearly showed that he had purposed in his mind to surround the

TVA power business with subsidies of great proportions. The special exemptions which Senator Norris procured for TVA have been sought and largely obtained by the rest of the 20 per cent privileged minority.

"The power to tax is the power to destroy." The grant of tax exemptions to organizations serving the 20 per cent, while loading unprecedented taxes upon the utilities serving the 80 per cent, operates as a double-edged sword. It promotes an artificially-favorable showing for the subsidized groups and, at the same time, hobbles and embarrasses (and, in time, could destroy) the investor-owned companies. Tax inequality, to my mind, is one of the most insidious and unconscionable of the special favors which have been granted to the subsidized-power groups.

Preference For the Privileged

But, in addition to tax-exemptions, this minority has another powerful implement of privilege—one called by the very term which George Logan used to describe "the greatest of all public evils"—namely, "preference."

I refer to the almost innocuously-worded and initially harmless gimmick in Federal statutes known as the "preference clause," which has, by a series of one-sided regulations and interpretations, been converted into a virtual monopoly privilege for the subsidized-power groups to purchase under-priced electricity from Federal power projects.

Under-Priced Power

The power is under-priced because (1) no charge is made to the power consumer for Federal taxes, and little or no charge for state and local taxes; (2) because the proper charge for the use of money drawn from the Federal Treasury to finance the power business is shaved down; and (3) in the case of multiple-purpose projects, because of overly-generous allocations of both capital and operating costs to non-reimbursable features such as flood control, and navigation, and by well-pruned allocations to the construction and operating costs of the power installations. A deceptively low price is thus fixed for project power.

The taxpayers of the nation (including the 80 per cent of electric consumers served by the tax-paying utilities who for all practical purposes are virtually barred from participation in the benefits of government-generated power) must make up the difference between the price charged the customer and the actual cost of the power to the government. Moreover, it is now contended that power from governmental projects must be sold directly to preference customers even though they have no facilities for taking it at the project or for transporting it to their load centers. This means that the taxpayers (again including the 80 per cent) must either pony up the vast expense of transmission facilities or become involved with annual wheeling and firming fees, amounting to millions of dollars a year, for the exclusive benefit of the 20 per cent.

The irony of this situation is becoming increasingly clear to customers of the utility companies in the Southeast and Southwest as the result of the excessive claims asserted by the subsidized power groups in the Clark Hill and Kerr Dam negotiations and in testimony and before one-sided investigative bodies.

The irony is that those who are taxed in their electric bills to help pay for the government power projects are not only effectively barred from obtaining the advantages of the under-priced project power, but must also pay, as a part of their electric bills, the cost of transporting this power to the tax-exempt 20 per cent!

The Wyoming and Hell's Canyon Stories

You people in the Rocky Mountain region have learned, to your chagrin, of another ironical twist to the preference clause as presently interpreted. For years, you have provided an essential market for by-product power from Federal reclamation dams in this area, thereby enabling the government to pay operating expenses and to provide some amortization of the tax investment in the power-producing apparatus of these projects. To take this power, you shut down existing generators and passed up the opportunity to build new ones during pre-inflationary years.

Now that the cost of constructing such facilities has sky-rocketed and there is no alternative source of power immediately available, you and your customers are told that the tax-exempt and subsidized power groups may now demand that your supply of this government power be curtailed or completely cut off so that it can be diverted to them. The Wyoming story, fully publicized, will dramatically illustrate for the nation the extent of the special favors claimed by the privileged groups as well as the arrogance with which their preferred status is now asserted against the majority of American citizens.

Limitless Appetite

Here in the Rocky Mountain region, close by Hell's Canyon, you are also learning what the people near Niagara have previously learned, namely, that the appetite for special privilege is limitless. The tax-exempt power groups, accustomed, under the preference clause, to the benefits of a power supply financed for them by other citizens, would now prohibit any except the government itself from developing the power potential of our waterways. They do not object to the taxpayers building such projects under government sponsorship for the special use of the privileged 20 per cent. Indeed, they are yelling for more and more of them. But they do object to the projects being built by private enterprise for the benefit of the majority of our citizens and notwithstanding every legitimate public interest is fully safeguarded.

The economically justifiable development of the nation's water resources for irrigation, domestic and industrial use, navigation and flood control, and for the production of electricity in conjunction with these other functions, is widely recognized and accepted as desirable throughout the nation. President Eisenhower's "partnership" concept assumes that Americans can work together today as they did when this great nation was founded, and on the further premise that the Federal government best serves the people by cooperating with local governments and local private enterprise in developing local resources, thereby keeping at a minimum the tax burdens upon the rest of the nation.

Reasonable American Approach

Now this seems to me a reasonable, fair, American approach to the matter. It does not rule out Federal multi-purpose projects where local groups may not be willing or able to handle the entire cost. But it does encourage private capital and local enterprise to finance and build, or share in building,

as many of these projects as possible so as to lessen the demands upon the already heavily-burdened Federal Treasury. Unfortunately, this reasonable endeavor to achieve resource development on a fair, economical, and harmonious basis does not appeal to America's privileged class as indicated by the opposition to the Trinity River, the John Day and other partnership proposals by tax-paying utilities.

Other Special Favors

Now the preference weapon has been extended to the atomic energy field. The Atomic Energy Act of 1954 gives the subsidized-power organizations preference rights to electricity produced at government atomic installations. Two months ago, on July 18, the first commercial electricity produced from the atom went into the lines of an investor-owned electric company in New York State from one of the government's experimental reactors.

But the power went to a tax-paying and regulated utility's customers only because three subsidized-power groups in the area were unable to arrange for transmission. If they can accomplish this within three months from July 18, they may still get the power. Here again, the tax-paying electric power users, whose money helped finance the government's experiments in nuclear fission, are likely to play "second fiddle" to the tax-exempt and privileged minority who paid no part of these costs in their electric rates.

Interest Payment Exemptions

Another privilege of great monetary value enjoyed by a part of the 20 per cent minority is the complete or partial exemption from ordinary interest payments on government money. TVA, for example, has receved directly and indirectly from the Federal Treasury approximately $1,600,000,000 with which to build the world's largest power system. On its appropriations, TVA has not paid a single penny of interest. Its exemption from interest payments, along with other subsidies, has enabled TVA customers to purchase power at approximately one-half its true cost to the government. Here again, American taxpayers have had to make up the difference.

A similar, although less extensive interest subsidy to that enjoyed by TVA customers, has long been made available to the customers of cooperatives in the form of loans from the Federal government at interest rates not only less than tax-paying utilities are required to pay in the competitive money markets, but also at interest rates less than the prevailing cost of money to the government itself. The burden of this differential, like that of the other subsidies I have mentioned, is being borne by the taxpayers of America.

I am sorry time does not permit a more complete and detailed catalog of the privileges enjoyed by the users of subsidized power. I hope the examples I have cited are sufficient to make you and your customers look more inquiringly into the discriminations which are being practiced against you.

The Growth of Privilege

How have such privileges and favors as these developed in democratic America; and what, if anything, can the 80 per cent of electric power users —and the investor-owned utilities which serve them—do now to restore some semblance of equality?

Two groups having widely divergent purposes have been unwitting allies in bringing about the present situation. The object of one has been to advance the socialization of the power business in the hope of thereby extending national controls to other segments of our industry and, more and more, over the lives of the American people.

The object of the second group has been simply to gain and enjoy special privileges at the expense of others. This latter group is composed of thoroughly-devoted Americans. It includes most of the rank and file and many of the leaders of the subsidized-power groups. They do not favor national socialism and authoritarian national government, and most of them are only vaguely aware—if, indeed, they are informed at all—of the extremes of discrimination now being practiced against their neighbors on the lines of the tax-paying utilities. The interests of the two groups are likely to become more divergent as time goes on provided the facts are clearly developed and effectively publicized.

Temporary Common Causes

The majority of Americans are not likely to be attracted by either the basic ideas or the promises of those who believe in Socialism as opposed to free enterprise. The Socialists are a threat to the free enterprise system because of their quickness and adeptness in joining forces in temporary common cause with other groups to gain the votes needed to advance their legislative purposes.

They are masters of distortion and of the smear-techniques of spreading false accusations in the newspapers and magazines and over radio and television. The group includes character assassins who do not hesitate to point the finger of unwarranted suspicion at representatives of government and of business who seek to adhere to and uphold the principles of free enterprise and responsible local government upon which America was founded and upon which she has achieved unmatched prosperity.

Political Motivation and Timidity

The effectiveness of the Socialists is tragically increased when they are joined, in their immediate purposes and in their misrepresentations, by supposedly responsible officials of government seeking personal or partisan political advantage, and when their noisy and intemperate charges frighten the more timid of our leaders into silence and inaction. The Dixon-Yates, Niagara and Hell's Canyon controversies vividly illustrate what I mean, to mention only a few recent examples.

Lure of Price Differentials

The proponents of national Socialism long ago realized that they could not come out into the open with their power schemes. They realized, too, that a government power supply, subject to the inefficiencies and the high-handed characteristics of bureaucracy could never compete for popular favor with utility service provided by the investor-owned companies. They saw that they would have to use the lure of a substantial price differential, based upon tax-exemptions and governmental subsidies to capture power markets in this country.

This combination of subsidy and priority drew to their support those who merely sought privileges and preferment and this latter group, because it was completely American, created the favorable sentiment and insured the support and votes for particular bills which enabled the outright advo-

(*Continued on page* 313)

Waste in Water

Some Notes on the Hoover Commission and Its Task Force on Water Resources and Power

By Admiral Ben Moreell

Chairman, Jones & Laughlin Steel Corporation

IT would perhaps be more appropriate to use as the title for this article "Waste and Water Shouldn't Mix." Because, to our great cost, waste and water have been mixing more and more intimately ever since some smart operator discovered that politics could be used as a catalytic agent to produce an emulsion of waste, water, dollars, unwanted farm crops, and votes.

It might interest you to learn how I came to be mixed up—and I do *mean* mixed up—in this affair.

In October, 1953, I got a telegram from Mr. Hoover asking me to come to see him. I was a bit puzzled, but surmised that he had a job for me. So I went to see him. That morning I had breakfast with one of our Directors and I told him of my date with the Chief. He asked, "What do you think he wants?" And I replied, "I think he wants me to take a job in connection with his new Commission." "And what are you going to tell him?" "I'm going to tell him nothing doing," said I, "I've got too much work already." "Atta-Boy," said he, "you tell 'im—stand right up to him and tell 'im." "I sure will," I said, "I'm going to tell 'im." "Well," he said, "I'll wait for you."

The Telling Off

So, I went up to the Summit (in the Waldorf Tower) to see the Chief. I was sure gonna tell 'im!

He greeted me very cordially; and the ensuing conversation ran something like this:

Chief: "Well, Admiral, there's no use beating around the bush, is there?"

Me: "No, sir."

Chief: "I want you to be Chairman of our Task Force on Water Resources and Power."

Me: "Yes, sir."

Chief: (Looking at his watch—and with a slight sigh) "I guess it's too late for you to start today. Suppose you start tomorrow."

Me: "Yes, sir."

Chief: (Rising) "Well—goodbye—keep me informed of your progress."

Me: "Yes, sir."

Then, I went down to see my Director.

"How did you come out?" asked he. "All right," said I. "Did you tell 'im?" "You're damn right I told him," said I. "Well, I didn't exactly tell him—but I let him know by the way I acted that I couldn't possibly start on the job yesterday. Yes, sir, I was firm. I start tomorrow." "What's more," said I, "You're going to be a member of my Task Force of Water Resources and Power." "When did you decide that?" asked he. "When I started on the job—yesterday," said I.

A Rewarding Association

That's how I became involved in one of the toughest, time-consuming, mud-slinging assignments of my career—and, with it all, the most rewarding association any man has any right to hope for.

The next 18 months was a period of intense activity, involving studies of statistics, eugenics, forensics, techniques, politics, historics, and tactics, all whirling about in a fortuitous jumble, and all designed to find out, in the field of water resources and power, who did what to whom and who paid the bill for it!

Before telling about the work of our Task Force, I would like to say a few things about the Hoover Commission, for the benefit of those who have not kept abreast of the most monumental work carried on in the United States during the current century, a work which might well determine whether the destiny of this country lies in totalitarianism or freedom, which, in turn, will depend upon what we, and others like us, do to help or to hinder the implementation of the Hoover Commission recommendations.

The Second Hoover Commission, which was set up by Act of Congress approved July 10, 1953 differs materially from the First Commission which was set up in 1947. The latter was limited to studies and recommendations to improve the then-existing functions of government. The Second Commission, in addition to the duties of its predecessor, is authorized to enter into the field of policy, that is, to determine not only whether an existing function is being performed efficiently, but, also, whether it should be done by government at all, and, if so, to what extent and in what manner.

It is obvious that the First Commission would be a far lesser political irritant than the Second. The first was concerned primarily with the shrinkage, reshuffling, and consolidation of agencies. This resulted in loss of jobs, thereby causing some political pain. The second, however, is authorized, also, to recommend the elimination of functions. This involves not only abolishing jobs but, also, reducing or cutting out subsidies, grants, guarantees, and hand-outs. As has been amply proved by recent events, whenever such measures are proposed, the voice of the anguished is heard through the land, crying, "Don't let them take it away; we never had it so good!"

Mandate of the Commission

The Act of July 10, 1953, which set up the Second Commission, sets forth, in detail, the rights, privileges, duties, prerogatives, perquisites, responsibilities, and emoluments of the Commission and its task forces. At the risk of over-simplification, I would say that the mandate of the Commission is to report conclusions and recommendations which can be used to demobilize

Socialism in our country; and to make workable, in terms of efficiency and economy, those responsibilities which remain in the hands of the Federal government.

I suppose some of you are wondering how much Socialism we now have. Defining Socialism as common ownership and/or control, through government, of the tools and materials of production, we can get an idea how far we have travelled down this road from the following statement by Rowland Hughes, Director of the Bureau of the Budget: "The Federal government is, among other things, the largest electric power producer in the country, the largest insurer, the largest lender, and the largest borrower, the largest landlord and the largest tenant, the largest holder of grazing land and the largest holder of timberland, the largest owner of grain, the largest ship owner and the largest truck fleet operator. For a nation which is the citadel and the world's principal exponent of private enterprise and individual initiative, this is an amazing list."

A Dangerously Impressive Figure

One might add, that the Federal government is by far the largest taxer and the largest spender. In fact, if we consider all levels of government—Federal, state and local—the total "tax take" approximates 30 per cent of our total national income—a dangerously impressive figure for a country whose founders set up a government of narrowly restricted functions and authority, which was intended to be the servant of the people—not their master.

So much, in brief outline, for the mandate of the Hoover Commission. Now about its Task Force on Water Resources and Power.

This is one of 13 Task Forces, plus a Committee on Business Organization of the Department of Defense.

Our Task Force was charged with making studies to be used by the Commission as a basis for carrying out its mission in the field of water resources and power. We covered four principal areas, which were:

1. Power Generation and Distribution, including atomic power.
2. Reclamation of Water Supply, including domestic and industrial water supply, irrigation, stream pollution, recreation, fish and wildlife, and drainage.
3. Flood control, including water retardation and upstream watershed treatment.
4. Improvements to water navigation, including inland water transportation and beach erosion.

Evaluating Importance

How important are these matters? An appraisal can be obtained from a look at the Federal government's investment in these fields in terms of (a) the total of funds spent to date and (b) the rapid increase in the rate of expenditures at a time when Federal budgetary deficits have become chronic, the Federal debt is at an all-time high, and it is insistently pushing against a newly established record ceiling.

Since 1824, when the Federal government first started to develop our water resources, it has spent a total of $14.3 billion, of which $11.6 billion were for capital outlay and the rest for planning, maintenance, and operation. Projects already authorized call for an additional capital outlay of $18½ billion. Other projects now in process of authorization or specifically planned and scheduled total $52.0 billion. Thus, with no allowance for cost increases, which experience indicates always occur, the total water resource program, built, building, authorized and/or scheduled, amounts to $82 billion, a tidy sum, even in these days of supercolossal expenditures!

Rate of Expenditures

What about the rate of expenditures? From 1824 to 1920, nearly a century, only 8 per cent of the present $14.3 billion total had been spent. Between 1920 and 1930, 6 per cent was spent. And since 1930, 86 per cent of the spending has taken place, with the bulk of it, 68 per cent, crowded mostly into the post-war years. The current performance indicates that unless something is done to decelerate it, the rate will double every ten years.

In 1954 there were 43 offices and bureaus of the Federal government involved in water resources and power developments. Of these, 25 have this as a primary responsibility or as a major activity. Their 1954 expenditures were $1.5 billion and they employed more than 70,000 persons.

From these figures, and having in mind the rapidly mounting Federal debt, it is evident that a critical appraisal of the entire program was long overdue.

The 26 members of our Task Force were recruited from 20 different states of the Union, representative of all parts of the country. None of the members was actively associated with either public or private power or any other interested parties. Only men prominent in their communities, of unassailable integrity, and in the top ranks of their professions were selected. No inquiry was made as to their political affiliations. Fourteen are engineers, six are lawyers, two newspaper publishers, three present or former State Governors, four business executives, one consultant in utility economics and finance, and one accountant. This totals more than 26 because some members fall in more than one category. Two are former Presidents of the National Reclamation Association, three are former officers of the Corps of Engineers of the Army, and two are past-presidents of the American Society of Civil Engineers.

The Task Force began its labors early in November, 1953, and was engaged on the work until our report was handed in on March 31, 1955.

Public and Closed Hearings

We held public hearings in five cities, San Francisco, Denver, Chattanooga, New York, and Portland, Oregon, at which 186 witnesses were heard and 75 additional statements in writing were received. The record of the testimony covers 5000 typewritten pages.

Closed hearings were held in Washington for the principal Federal Agencies concerned—i.e., the Federal Power Commission, Corps of Engineers, Department of the Interior, and Department of Agriculture.

The Governors of States and Territories submitted their views in 78 written statements.

Twelve major field inspection meetings were held with Federal Agencies, and a number of special inspections of field projects were made by individual Task Force members.

Every Federal reclamation project and every power system were studied in detail, as were also the most important flood control and navigation projects. In all, some 200 individual projects were studied.

During the 17 months of active

work there were 81 meetings of the Task Force or its sub-groups.

From these labors, there came forth a completely documented report consisting of 1783 printed pages of text, supported by tables, maps, and charts. The Report contains a detailed history of water resource development, discussions of Federal policies and organizations, findings, recommendations, and what the Chief calls "horrible examples," which serve to point up past mistakes and to support the recommendations.

Bird's-Eye View of Data

It is impossible, in the brief time available, to give more than a bird's-eye view of the mass of data we collected, the conclusions reached, and our recommendations.

I believe our most important conclusion is that the activities of the Federal government in this vital and costly field have grown like Topsy, with no central supervision except a "once-over-lightly" by the Bureau of the Budget, which has never been adequately staffed for the purpose. Huge sums have been spent without benefit of any clear-cut, unified body of Federal policy. Instead, each agency established its own policies and, within the agency, there are different policies for different types of development. The projects have been programmed under different "ground rules" which are often in conflict and competing with one another. The current Federal policies, taken together, are a hodge-podge of contradictions which generate conflicts among agencies, overlapping of functions, competition for position, and wasteful expenditures.

Integrity Unquestioned

I am trying to avoid creating the impression of scolding. So I would like to make it clear that while our findings may appear to cast doubt on the competence of the Federal Agencies, in general, (with a few conspicuous exceptions), the professional qualifications and personal integrity of their personnel are not called into question. Our report contains this statement: "The Task Force has been forced to the rather depressing conclusion . . . that most of the weaknesses revealed by its studies are inherent in bureaucracy and can be kept within reasonable bonds only by improvement of existing policies and establishment of more adequate machinery for review, inspection, and coordination."

I will mention very briefly some of our other conclusions:

The King-Size Hot Potato

First, with respect to Public Power: *This is the king-size hot potato.* It is important for two reasons: first, because the left-wing groups have found that this issue has a strong popular appeal which can be used as a powerful political vehicle; and second, because socialized power can easily lead to socialized industry. For the control of the allocation of power carries with it control over all the operations of industry.

There is no logical reason for the popular appeal of the public power issue. It is true, nevertheless, the demagogues have been able to use it to hoodwink the public. Actually, the cost of electric power to the average householder is about 1 per cent of his family budget. *A reduction of only 3 per cent in his tax bill would pay for all of his power.* But the politician conveniently forgets to mention that fact. For taxes are the very life-blood of politics.

Markets Artificially Created

As for industry, except for the electro-chemical and electro-metallurgical industries, the cost of power averages about 1 per cent of the total manufacturing cost. For the two industries mentioned above it is about 10 to 15 per cent. The importance of public power to the average small industry lies principally in the fact that a local market (of uncertain stability) has been artificially created by the generous expenditure of public funds in a particular area, or, in the case of the electro-metallurgical and electro-chemical industries, they are able to obtain a cost advantage over their competitors who must use private power.

Potent Political Issue

Public power has already become a potent political issue; and it is growing in importance every day. In 1933, the installed capacity of Federal power projects was less than 1 per cent of all electric utilities in the country. By 1953, the Federal government had become the largest single producer of power, producing 13.1 per cent of the kilowatthours generated. Federal projects now under construction and authorized will, by 1960, more than double the 1953 capacity and, when all are completed, will triple it, reaching a total of 35 million kilowatts, at a total cost of $10 billion.

If subsidizing public power continues, the situation will be worsened by the development of atomic power. Competent authority has estimated that by 1975, atomic power alone will have an installed capacity of between 40 and 60 million kilowatts, and will be increasing rapidly. Our present total capacity of all kinds of power is slightly over 100 million kilowatts.

No Technical, Financial Need

Technically and financially there is no present nor prospective need for Federal power activities. There is no lack of ability on the part of private power to finance and install needed generating, transmission, and distribution facilities. Since the end of World War II, investor-owned electric companies have spent approximately $18½ billion for such facilities, as against an approximate *total* expenditure by the Federal government from the very beginning of its program to the present, of $2½ billion.

All Federal power is subsidized, more or less. The subsidy takes one, or more, of the following forms in the establishment of rates:

(a) Interest rates which are lower than the proper cost for long-term money.

(b) No Federal income taxes or comparable contribution to the cost of the Federal government.

(c) Little or no state and local taxes.

(d) Charging large parts of the initial capital costs to wholly subsidized Federal activities, such as flood control, navigation, fish and wildlife, etc.

(e) Charging administrative costs, insurance, and pensions to other Government accounts.

A Missing $130 Million

Our Task Force concluded that if all Federal power rates had been based on power values computed in accordance with Federal Power Commission methods, the rates would be increased by 30 to 50 per cent and the government would have received $130 million more in power income in 1953 alone. If present Federal rates are continued

for power projects now programmed, this revenue loss—which, in its effect, is a subsidy—could amount to $400 million a year.

The construction of Federal power projects as a so-called "yardstick" to control the rates charged by investor-owned utilities is a "phony." I was taught that there are 36 inches to the yard. But by virtue of failure to include taxes and because of low-interest financing and other hidden subsidies, the so-called "yardstick" proposed by public power proponents has somewhere in the neighborhood of 24 to 27 inches.

The improvement in recent years of regulatory techniques and the successful administration of controls instituted by the states and the Federal government over both operations and investments have provided adequate safeguards for both consumer and investor. No "short-change" yardsticks are needed.

There is much more that I could say about public power, as, for example:

(a) That the only areas in the United States which face a current or prospective power shortage are those now served predominantly by public power.

(b) That Federal agencies have frequently described projects as flood control, reclamation or navigation measures (all of which are heavily subsidized) when their real and obvious purpose is to produce electric power.

(c) That private power companies, by their tax payments, are forced to subsidize competing public power.

(d) That 80 per cent of our people who obtain their power from private companies subsidize, in large measure, the 20 per cent who are served by public power.

(e) That private power cannot compete with subsidized public power for obvious reasons, which means that as long as the general taxpayer is willing to foot the bill for the subsidy, the areas served by public power will expand at the expense of areas served by private power. There is the equivalent of Gresham's Law on money here—bad power chases out the good!

The Task Force concluded that no additional Federal projects which are exclusively for power should be built and that an early start should be made on selling Federal power projects or the power portions of multipurpose projects to private industry, or, if this is not feasible, to the states and local governments.

Uneconomic, Wasteful Uses

Another important conclusion is that, in many instances, politically motivated development of our water resources has resulted in permanently committing precious water to uses which are uneconomic and wasteful.

The much-discussed Upper Colorado River Storage Project is a prime example. Here is a political boondoggle of purest ray serene, which would develop power at localities far from where it is needed, and would commit the water for irrigating lands useful, for the most part, only for the uneconomic growing of forage crops. Once water is committed to such uses, even though they be wasteful, it would be political suicide to try to take it away. There are vast deposits of oil, oil shales, coal, uranium, titanium, and other minerals in this area as well as other industrial potentials, all of which will need much water for their development. It has been estimated that 1000 gallons of water will grow 10¢ worth of crops here, but would permit the production of $5.00 worth of industrial products. The first increment of this project, now being actively processed through Congress, is estimated to cost $1.7 billion, more or less, and the ultimate cost of the complete project, $4 to $6 billion.

Governmental Reluctance

We found, too, that there is great reluctance on the part of government to make people pay for the benefits they receive. I have indicated the subsidies for power. With respect to irrigation, the general range of payment required from beneficiaries has been between ¼ and ⅓ of the capital costs and a few are as low as 10 per cent. In no case have they been required to pay interest. Some projects have a payout period of as much as 400 years. The interest charges must be paid by some one, and these are considerable, even at low government rates.

With respect to navigation improvements and most flood control projects, local contributions average only a few per cent of their initial cost. No contribution is required from local sources for flood control dams and storage reservoirs.

The Federal government usually subsidizes completely the costs of benefits classified as for fish and wildlife or pollution abatement.

The Task Force concluded that the Federal government has planned, constructed and paid for projects which are economically unsound and, hence, waste the national wealth; that project costs are frequently under-estimated; that estimated direct benefits are often exaggerated; and that unsupported and unsupportable claims are made for so-called "indirect benefits," such for example, as tax revenues resulting from increased business activity, increases in the population, and many other credits claimed as resulting from the project.

Benefits Over-Estimated

This over-estimating of "indirect benefits" is a favorite maneuver of the promoter of unsound projects. In many instances, their evaluations can be classified as pure fantasy. When the skilled evaluator of indirect benefits hits his stride he finds no difficulty in assigning specific dollar values for the mental, moral, physical, intellectual, psychic, global, and cosmic satisfactions which will be derived by individuals, groups, and the nation-at-large from the project he is justifying!

Backing in Report

The statements I have made in the foregoing are backed up in our report by statistical data and by specific "horrible" examples of the evils we describe.

There seems to have evolved in this country a belief that the expenditure of Federal government funds to promote the interests of a favored area, or of a favored group, is justified, provided it can be shown that the resulting benefits to the national economy (which are usually grossly over-estimated) will *probably* exceed the initial costs (which are usually under-estimated). The question whether this is the *best* expenditure of public funds in the interest of all the people of the nation, who pay the bill, seems to have been by-passed. And I am sure that anyone who would dare raise a question as to the *morality* of forcibly taking money from all the people for the

(*Continued on page* 313)

Revised "Farmstead Wiring Handbook" Now Available from EEI

Industry Committee on Interior Wiring Design Publication Lists New Minimum Standards for Adequate Wiring on the Farm

NEW, upgraded wiring standards for America's farms are set forth in the revised edition of the "Farmstead Wiring Handbook" just off the press.

Published by the Industry Committee on Interior Wiring Design, the new 48-page manual supersedes an original edition issued in 1946. It sets down a list of minimum recommendations which in the electric industry's opinion are necessary if the farm is to be adequately wired for present and future needs.

Made necessary by the farmer's rapidly expanding use of electrical farm production equipment, the new edition is a sequel to the Committee's "Residential Wiring Handbook" published last year. It recommends and suggests such things as sizes of wire, number and location of outlets to help the farmer improve the efficiency, convenience and adequacy of his electric service.

Changes and Additions

Some of the handbook's changes and additions:

Service entrance panels now in most cases should be 200-amperes or larger, and service entrance conductors should be no smaller than No. 2 copper or No. 0 aluminum.

All branch circuits in farm buildings are now recommended to be 20 amperes.

For the first time a minimum wire size (No. 12) is recommended for branch circuits.

Wiring for such new farming wrinkles as milking pits, automatic feeders, silo unloaders, hotbeds, and heat lamps over drinking and feeding areas are discussed for the first time.

Just how much greater use the farmer is making of electric power is shown in these facts: In 1930, says the handbook, a three-wire, 60-ampere electrical connection was considered adequate to service most farms. By the end of World War II, 60 to 100 amperes or more were needed. Today, an upsurge in the development and purchase of new equipment, particularly that operating on 230 volts, is putting a still greater strain on most farms' wiring. Thus, some farmers are finding even 200-ampere service to be inadequate.

Three Sections

The handbook is divided into three sections: Interior wiring design, outdoor electrical distribution, and a series of tables which show wire sizes needed to carry various electrical loads. All are explained in easy-to-understand text and diagrams. The interior wiring section covers practically every farm electrical application, from those in dairy and poultry structures to barnyard lighting and water systems. The exterior wiring section contains some all-new chapters on three-phase service, isolated motors, emergency service and underground services and feeders.

The manual is designed for use by agricultural colleges, electric power suppliers, architects, engineers, builders, electrical contractors, and lending institutions as well as the farmer.

Sponsors Listed

It was developed by experts from the Wiring Design Committee's twelve sponsoring and endorsing organizations. Sponsors include American Home Lighting Institute, Inc., Edison Electric Institute, International Association of Electrical Inspectors, National Association of Electrical Distributors, National Association of Home Builders, National Electrical Contractors Association, National Electrical Manufacturers Association, and National Rural Electric Cooperative Association. Endorsing organizations are American Institute of Electrical Engineers, American Society of Agricultural Engineers, Illuminating Engineering Society, and Inter-Industry Farm Electric Utilization Council.

The Committee has authorized Edison Electric Institute to publish the handbook. For copies write: Industry Committee on Interior Wiring Design, Room 2650, 420 Lexington Avenue, New York 17, N. Y., or contact the headquarters office of any sponsoring organization.

Price schedule for the publication is as follows:

Single copies	50¢
10-99 "	22¢
100-999 "	20¢
1000 or more	18¢

The Forward Course of the Electrical Industry

By Dr. A. E. Grauer
President, British Columbia Electric Company, Limited

An Address before the Annual Meeting of the Canadian Electric Association, Vancouver, B. C., June 27, 1955

THE electrical industry is a relatively new one. It may be described, without too much distortion, as the child of the nineteenth century and the father of the twentieth.

During the past 200 years man has made greater apparent advances in controlling his physical environment than during any previous period in history. Standing as we do at the threshold of the atomic age with its terrors, its hopes, and its opportunities, we feel that we are living in an era that is the most momentous of all.

Where we stand in the true perspective of history, however, is impossible to say. Looking back over the record, some future Arnold Toynbee with the incontestable wisdom of hindsight might rank the relative importance of our own accomplishments in the sweep of history as second to the discoveries of primitive man or of the classical period or might declare that they were but a continuation of the forces set in motion when James Watt first released for practical use energy stored in the fossil fuel, coal.

Review of Past Accomplishments

There is no doubt, however, that the contribution of electricity in modern times has been a major one. Before attempting to look forward into the future of the electrical industry, it is helpful briefly to review the accomplishments of the past.

The historical development labeled as the Industrial Revolution, which ushered in our age, sprang from seeds of ancient origin which did not burst into flower until around 1750 and whose full bloom has not yet been reached.

The Industrial Revolution affected all aspects of society. It was characterized by the stimulus of free scientific enquiry in the physical and social sciences, by the extension and refinement of the democratic form of government in western Europe and the New World, by the development of new sources of energy and the application of power equipment to use the energy, by a freer attitude toward trade, by the growth of cities, the factory system, industrial wage earners, joint stock companies, the trade union movement, and labor legislation.

Outstanding Individual Efforts

The efforts of individuals were outstanding in this period of rapid historical change, but, as always, the general environment was such as to stimulate their efforts and make their findings fruitful.

James Watt, a Scottish ironmaster, in the eighteenth century developed the first steam engine, and this event has often been heralded as the beginning of the Industrial Revolution. However, other elements were essential besides the application of a new source of power. The agricultural revolution in Great Britain was in full swing; its foreclosures and the consequent drift of yeomen to the towns created an abundant supply of cheap labor for the new factories. Adam Smith had noted the economic advantage to be gained by the division of labor in his classical example of the pin factory. In the technical arts, metallurgy had developed to the point where Watt's invention could be of practical importance.

Watt's discovery, though not original, thus occurred when other necessary factors were present. The steam pump had been used in English mines since the early nineteenth century. Contracting and expanding properties of steam when cooled or heated were used to create a vacuum for sucking out water.

Hero of Egypt in classical times had experimented with steam jets for the propulsion of ships but no worthwhile results came from classical discoveries because the ancient world already had an abundant source of energy in the slave system, and the peasants of the Middle Ages also provided abundant labor tied to the land. During the Renaissance, technical skills were not mature enough to make the application of known knowledge practical.

It is against this background that the electrical industry was conceived and born.

In 1781, twelve years after James Watt obtained his first patent for the steam engine and five years after the publishing of "The Wealth of Nations," Henry Cavendish, an English philosopher, advanced the proposition that an electrical current varies in direct proportion to the electromotive force. Electrical engineers will recognize this as an anticipation of Ohm's Law which was formulated in 1827. However, nearly 100 years were to elapse between Watt's invention, the theories of the brilliant Cavendish, and the discovery in 1873 at Vienna that a dynamo could act as an electric motor when electric current was passed through it from a similar machine. In so far as one may choose a specific date, our electrical industry may be said to have begun then.

Varied National Origins

It is interesting that the pioneers of the gestative period of the electrical industry came from so many different countries. Among others, the Italian Volta, the Frenchman Ampere, the German Ohm, the Dane Oersted, and the Britishers, Faraday, Davy, and Kelvin, all made outstanding contributions.

In 1881 Edison opened his Pearl Street generating station in New York City. The first British station opened in 1882, and the benefits of incandescent electric lighting were brought to public attention in the great exhibition at the Crystal Palace the same year. These two events culminated almost 300 years of electrical research by philosophers, mathematicians, chemists, and phys-

icists of many nations—a great international achievement.

With the practical stage having been reached, progress was rapid. You all know the story of the great improvements in efficiencies and economies of steam generation, hydro-electric generation, transmission, and distribution.

The vast improvement in the western world in modern times respecting standards of living, working hours, and leisure is the end result of a rapidly growing increase in the productivity of labor to which, in turn, the highly efficient and flexible forms of energy, electricity, has greatly contributed.

A century ago, 79 per cent of the total work energy was supplied by animals, 15 per cent by humans and only six per cent by machines. By 1960, it is estimated that animals will supply one per cent, humans three per cent and machines 96 per cent.[1]

Similarly in Canada, only 100 years ago wood was responsible for some 90 to 95 per cent of Canada's energy requirements; it is now down to between five and ten per cent of the total.[2]

Continuing Contributions

We come then to the contributions which electricity has been making, is making, and will continue to make in our times.

First is the electrification of industry; the progressive electrification of the factory has been spectacular.

Early in the 19th century, the West Indian plantation owners could tell Wilberforce that their slaves were well off by comparison with English factory workers. The factory work day then was geared as closely to the most economic operating time of the steam engine as the human frame could stand, and a 70 hour week was not uncommon. The early factory, with its long lines of overhead shafting and miles of belting, was almost as noisy as a battlefield. Physical and mental casualty rates were correspondingly high. Furthermore, the mass of levers and gears governing the speeds of the various machines required considerable strength to manipulate.

Later the individual machines were operated by small steam engines supplied with pressure from pipes connected to the boiler room. This increased the flexibility of factory operations, but the new development was soon outclassed in every way by the electric motor.

Three-Phase Introduction

Electricity has been introduced to the factory in three broad phases.

In the first phase, ending prior to World War I, the electric motor replaced the overhead belt and shaft systems but the organization of production remained relatively unchanged.

Then, about 40 years ago, in 1914, Henry Ford introduced the assembly system which subsequently changed the face of industry. The organization of production then centered around the maintenance of an orderly flow of raw materials to the assembly line and an orderly flow of products away from it. This phase is now in its heyday.

Finally, there is the era of automation which lies immediately ahead where batteries of machines largely replace the human element in the assembly and perform many of the tasks now carried on by the office force.

One underlying characteristic has been an increase in the use of electrical energy per worker. An American study shows that in the United States, between 1914 and 1947, hourly productivity per man-hour increased 2.95 per cent annually; hourly earnings increased by almost the same amount, 2.91 per cent, and the use of power per man-hour increased 7.68 per cent.[3]

Industrial Consumption Compared

The average electrical consumption per Canadian industrial worker between 1939 and 1951, the latest available period, has remained virtually unchanged, being 29,523 kwhr in 1939 and 29,889 kwhr in 1951.

American figures, on the other hand, have shown an increase from almost 10,000 kwhr per worker in 1943 to almost 16,000 kwhr in 1953, an annual increase of approximately 5 per cent. The annual Canadian use of kilowatthours per worker is therefore about double the corresponding American figure.

The apparent stability of Canadian figures compared to American is easily explained. It arises from the fact that our basic manufacturing industries, notably pulp and paper and the metallurgical industries, though still growing, are becoming relatively less important in our economy as other secondary industries develop, which use much less electricity in relation to manpower. A pulp mill, for example, uses approximately 105,000 kwhr per employee while a furniture factory, at the other extreme, uses only 2,000 kwhr.

Nevertheless, the importance in Canada's economy of the various metallurgical industries, which use electrolytic processes, and the pulp and paper industry, is still such that it leads the world in the consumption of electricity per capita. The 1953 figures were as follows: Canada–4,915 kwhr per capita; U. S. A.–3,215; Great Britain–1,500.

If we could separate electrolytic and pulp and paper industries from the remainder of Canadian industry, I think we would find that kilowatthour use per worker is increasing annually at about the same rate in Canada as in the United States—that is, approximately 5 per cent.

Industrial Electrification Effect

The electrification of industry has made possible a marked downward trend in the hours of labor and a striking increase in real wages measured by constant dollars. In terms of 1949 dollars, real wages in Canada increased from $1,545 in 1929 to $2,290 in 1951.

With the development of electrolytic processes, electricity has also made available great resources which otherwise would have remained partially or completely locked in nature. The electrolytic process has made practical the great Canadian aluminum and lead and zinc refining industries, and as a by-product of the latter two, the fertilizer industry.

In an over-all way, perhaps the most striking contribution of electricity to industry has been that it made possible mass production methods, a downward trend in prices, and an upward trend in quality.

[1] National Research Bureau, Chicago, Ill. The Story of Electricity, p. 14.

[2] O. J. Firestone, "Canada's Growing Economy and Energy Requirements," address to the 47th Annual Convention of the Canadian Gas Association, Banff, June 23, 1954.

[3] The Eddy Rucker Nichols Company, "Progress, Productivity and Pay," p. 20, Harvard, Mass.

Turning from industry to the field of agriculture, the electric motor and the mechanization of farming has meant sharply ascending production with fewer and fewer farmers and farm workers.

In this field, electricity is playing a growing role in extending agriculture to arid but otherwise fertile areas. As yet, irrigation does not play a great role in Canadian agriculture. In British Columbia, in the Okanagan, the Kootenays, and on the benches of the Fraser, there are considerable areas of arid land which, with irrigation, will make an important addition to our agricultural resources.

In the early days, all irrigation was by the gravity system whereby water, through trenches, traversed the tops of the farms and was utilized by flowing it down rows. Not all land, of course, could be irrigated by such methods as in many areas the slopes were adverse; and erosion, in any event, tended to deplete the fertility of the land by carrying away the top soil.

An answer to these problems has been found in the sprinkler system, which depends primarily upon the electrically driven pump in order to provide the necessary pressures. An outstanding example of the role played by the electrical industry in developing a great agricultural resource through irrigation is to be found in California. There is no reason why this extraordinary development could not be duplicated in many other parts of the world.

The spectacular reduction of drudgery on the farms, as well as in the factories, is one of the greatest of the social contributions of electricity.

Contribution to Home

Nowhere is this trend more evident than in a third and most important area of contribution by the electrical industry, the home. Electricity has given the modern housewife a service which only the very well to do could afford a generation or so ago.

However, our performance in this field has not been as efficient as we are prone to believe. The evolution of the electrical home has been gradual and is still far from complete.

Many appliances were not produced commercially for home use until some 20 or 25 years had elapsed after their invention. The hand iron, for example, was invented in 1882 but not introduced commercially until 1902.

Until the turn of the century, the incandescent lamp remained practically the sole source of electrical application in the home. In 1905, the first practical washing machine was perfected, but an active market did not result until 1918.

Appliances Introduced

The first practical electric range appeared in 1910, the refrigerator in 1913, and the ironer in 1917. The vacuum cleaner was manufactured as early as 1909 but did not gain general acceptance until after World War I.

In 1929, small electric motors came into use and with this a host of appliances varying in range from the electric shaver to power tools for the home workshop.

Radio appeared in 1923, and television on this side of the Atlantic began its mass appeal in 1946.

Residential consumption of electricity in the past ten years in Canada, including new customers, has been increasing at 12½ per cent annually, and the use per customer has grown at a rate of 6.4 per cent annually.

Average consumption per customer in 1952 amounted to 2,809 kwhr in Canada compared to 2,346 kwhr for the United States in 1953. The fully electrical home, however, would average some 12,000 kwhr a year, exclusive of electrical space heating. Our Canadian homes, on the average, are about 23 per cent saturated with electrical equipment.

A fourth area of great contribution by electricity has been as a public servant.

Community life in 1890 had no street lighting at all, with the exception of a few gas lights. Communication with police stations, fire halls, or hospitals in case of necessity depended upon messengers.

Changes in Community Life

Today, we have the following electrical developments which have changed community life entirely from its nature in 1890: modern street lighting, traffic control, police radio, taxi radio, utility radio, fire alarm systems, ship-to-shore radio, school lighting, outdoor night recreation, visual education in the schools, moving pictures in the schools, trolley coach transit systems, pumping stations for sewerage and water, airport lighting, airplane beams, regular fire alarms, telephone systems for short and long distance, X-ray, and radar.

Bearing upon community life, electricity has also made possible the decentralization of industry. At the same time, it has made at least bearable, with all its various controls and with air conditioning, the huge aggregations of people in such centers as New York and Chicago.

And now I would like briefly to review the challenges to the electrical industry for the future.

The sales challenge has already been indicated. The average Canadian home, with a saturation of electrical equipment of 23 per cent, still offers a fertile field for sales effort but assiduous cultivation is needed in order to increase that saturation. Electricity is in competition with other forms of energy for water heating and cooking, and these are our two biggest load builders. Natural gas, when it is available in Ontario and on the Pacific Coast, can be counted upon to offer very stiff competition to electricity for these two types of load.

An official of one of the American electrical manufacturing firms recently said that there are some 54 fairly standard electrical appliances recognized today for the modern home, of which the average American household has only nine.

Inadequate Wiring

It has also been estimated that there are some $15 billion worth of electrical wiring to do in the United States in order to eliminate the dangerously deficient wiring that already exists in American houses in view of the increased use of electrical appliances to date.

No corresponding statistics exist for Canada, but the situation is at least as good from the sales point of view.

Again, on the farms, according to the 1951 census, 57 per cent of Canadian farmers had power line service in 1951 compared to 90 per cent in the United States in 1952. Canada has more sparsely populated areas

than the United States, but the challenge nevertheless exists.

Next, there is the rates challenge and closely allied with it what might be called the technical challenge. In other words, the constant challenge to the public utility industry is to make an adequate supply of dependable and reasonably priced power available in anticipation of the needs of the communities it serves. This involves both rates and sources of electricity. The complexity of this challenge is growing at a very fast rate.

"Fundamental" to Canada

Two years ago, M. W. Mackenzie former Federal Deputy Minister of Trade and Commerce and now President of Canadian Chemical & Cellulose, stated at Canada's Tomorrow Conference, "In the same way that the industrial growth of England and Germany was based on coal, so hydro-electric power has been fundamental to Canada's development."

Last month, President Jack Fuller of Shawinigan, stated to the Life Underwriters Association, "The statement we so often hear that Canada is a land of unlimited resources of low cost power has become altogether too broad a generalization."

Two of the most favored provinces to date in low-cost hydro, Ontario and Manitoba, have now reached the point where future requirements must be met by thermal power stations or by more distant and more costly water power or by atomic power.

As a result, Ontario Hydro has had to raise its rates twice in the last five years or so, and this trend will probably spread.

Economic Leverage

Quebec and British Columbia, and to a lesser extent Newfoundland, are the only provinces left with large amounts of reasonably priced hydro. In the rapidly changing power picture, this gives these provinces a tremendous economic leverage at this particular stage of development. It remains to be seen how wisely they make use of this great asset.

For the rest of Canada, however, it would appear that we are on the verge of losing one of our most important historical competitive advantages in comparison with the United States, namely, low cost hydro electric power; and this would appear particularly to affect Ontario.

Canadians, with an internal market of 15 million people compared to the 170 millions of the United States, cannot expect to achieve their economies of large scale production. We must look elsewhere for compensating advantages. The loss of the competitive advantage of low-cost power may therefore be a significant one over a period of time, although it is by no means our only advantage.

Even in the power rich provinces, hydro resources will be exhausted within a few decades at the present rate of growth; and three or four decades is a very short period in the life of an area.

The development of atomic power will not necessarily help Canada here because countries with large concentrations of population will get at least as cheap power from nuclear fission and probably cheaper because of the economies of large scale production.

Age of Automation

Another challenge to the electrical industry is the new phase of productive development that we seem to be entering, the age of automation.

Automation may be described as "the use of energy to control a process in order to guide it along predetermined lines." The most common example of automation is the thermostat on your furnace. The thermostat is fed certain information concerning heat and on the basis of this information has a predictable behavior pattern.

The electronics industry has made it practical to develop machines with good memories and complicated but predictable behavior patterns. The built in program which determines the behavior patterns is controlled through a principle known as the feedback. Feedback is but one of a long list of new words in a brand new vocabulary which has been built up around the science of cybernetics, which pertains, among other things, to the development of electronic thinking machines.

Automation means, as one wit has said, "push-button factories where machines push the buttons." Automatic telephones, teletype, and the newest oil refineries are early examples of automation. The Chrysler engine is now assembled automatically, and similar steps have been taken or are being contemplated in a wide variety of industries.

The atomic energy industry by its very nature will be one that is critically dependent upon automatic control.

The age of the automatic office seems to be on us. In the past 31 years production workers in the United States have increased a little more than 50 per cent while office workers have increased 150 per cent and the disproportion of rates of growth is continuing. The use of electronic computers is expected to simplify office procedures and give management more up to the minute information on the operation; and it is also expected to give information which formerly was not practicable to obtain because of its complexity.

In one company, 37,000 combinations of price, production, mixture of output, and cost allowances were found deserving of analysis. Without an electronic computer, such a problem would have been untouchable.

One American airline has placed part of its operations in the office on an automatic basis. It uses "the reservasor" which is a memory drum containing a record of the reservations on a thousand flights for the next ten days. When the customer selects his flight, the agent pushes a button "sell" and the "reservasor" deducts the reservations already made on the flight in question; and the customer's waiting time is reduced to seconds.

It is too soon to determine the over-all effect of these developments on employment and on business relationships but they are obviously going to be important even though at this stage they do not seem to be economical for medium- or small-sized businesses.

It won't be long before we are all dealing with the economic and social challenges of automation.

Challenge of Atomic Power

Finally, we come to the challenge of atomic power which is with us, and of solar energy, which is in a more theoretical stage.

The most recent publication on the subject of solar energy to come across my desk called "Utilization of Solar Energy," put out by the Stanford University Research Institute on

May 1, 1955, points out that the solar energy received in the United States per year amounts approximately to 9,000 trillion kwhr or the equivalent of 1,150 billion tons of coal; also that the solar energy falling on Lake Mead exceeds by five times the rate that power is generated by the hydroelectric generators of Boulder Dam utilizing the waters of the Colorado River.

This publication ends with the interesting statement, "The attack on the problem of solar energy capture is gaining momentum. While the obstacles are formidable, the rewards for accomplishment are great. It is probable that success is mandatory."

Worldwide Development

The practical development of atomic power is proceeding apace in almost every major country of the world.

Five different types of power reactors are to be built in the United States, some on an experimental basis, others as test plants by public utility companies.

The British have an aggressive program covering 12 plants over a 10-year period, and in Canada you all know of the announcement to build a 20,000-kw experimental power reactor on the Ottawa River under the auspices of Atomic Energy of Canada Limited and Ontario Hydro.

Economics of Atomic Power

The economics of atomic power is usually analyzed as follows: The only part of the electrical process affected is steam for the boiler; atomic steam replaces conventional steam with the turbine and generator remaining relatively unchanged. The advantage of nuclear fission is therefore lower steam cost. However, this lower fuel cost is offset to some extent, and under certain conditions, may be even more than offset, by fixed charges on the necessarily increased capital cost of the atomic boiler brought about by the complicated and dangerous process of nuclear fission.

It has been estimated that when the costs of transmission, transformation, and distribution are added to those of turbines and generators, the area of cost which can be affected by atomic power would characteristically amount to some 15 per cent only of the total cost of electricity. In other words, even if atomic power could supply steam free, only about 15 per cent of the cost of electricity to the consumer would be affected.

Even so, the area of steam cost is an important one, particularly in countries and regions where fuel is costly. Nevertheless, the conventional analysis does not indicate any millennium of lower power cost resulting from atomic power. The general expectation is that a generating range of six to eight mills per kilowatthour might be achieved after a period of experiment and experience.

Hydro Power's Future

On this basis, existing hydro power will more than hold its own with atomic power, as will future hydro power which can be developed on a reasonable cost basis. The role of atomic power will be to supplement steam power from conventional fuels and eventually to replace it, at least in many areas, as far as new plant is concerned.

However, one must pay some attention to the fact that the concept of nuclear fission is so vast and so new. Philosophically and historically, one must always be prepared for the "leap" in development as contrasted with slow, gradual evolution.

An exponent of this view, John von Neumann, a member of the Atomic Energy Commission of the United States, has the following to say: "It is not a law of nature that all controlled release of nuclear energy should be tied to fission reactions as it has been thus far. It is true that nuclear energy appears to be the primary source of practically all energy now visible in nature—yet fission is not nature's normal way of releasing nuclear energy. In the long run, systematic industrial exploitation of nuclear energy may shift reliance on to other and still more abundant modes. Again, reactors have been bound thus far to the traditional heat-steam-generator-electricity cycle, just as automobiles were at first constructed to look like buggies. It is likely that we shall gradually develop procedures more naturally and effectively adjusted to the new source of energy, abandoning the conventional kinks and detours inherited from chemical-fuel processes. Consequently, a few decades hence energy may be free—just like the unmetered air—with coal and oil used mainly as raw materials for organic chemical synthesis, to which, as experience has shown, their properties are best suited."[4]

I throw this viewpoint in so that you won't get too complacent. For the time being at any rate, the problem of the electrical industry is higher costs rather than zero costs. But for both the short and the long run, whatever will bring about the lowest possible costs of electricity is what we will all be working for; and by the nature of our industry, the lower we can get our costs and prices the stronger we will be.

Major technical innovations, like automation and atomic power, are in themselves neither good nor bad. It is our use of them that counts.

The Freedom Quality

Up until now, the greatest single quality that the most advanced nations of the world have had—the western democratic free enterprise countries—is freedom.

We are so used to freedom in Canada and the United States that the mention of it may sound commonplace. But the record of history shows how rare it is for the individual to be free.

As the Roman republic became a slave society, the formula for attacking economic and social problems became "bread and circuses." A political philosophy of this type in its modern equivalent is certainly not beyond the realm of possibility, but it would spell disaster for this reason if no other, that eventually society would not produce the brains to keep itself going.

Individual, Group Resourcefulness

By contrast, our "free" society has so far developed the individual and group resourcefulness to meet the challenges of technological and social change. It is hard to imagine this happening under the monolithic state monopoly of socialism or the dictatorship of communism.

The recent record of the free enterprise system would indicate that through channels like research and the constant flow of ideas from individual initiative we will provide the new opportunities for our citizens

[4] Fortune Magazine, June 1955, p. 107.

(*Continued on page* 312)

An Analysis of the Accident Experience of the Electric Utility Industry During the Past Five Years

By G. E. Watkins*
Engineer, Edison Electric Institute

WITH 1954 being one of the safest years on record in the electric utility industry, a five-year trend of improving accident performance is continued. A review of the accident statistics submitted to the Edison Electric Institute by electric utilities for the years 1950, 1951, 1952, 1953 and 1954 gives rise to the following conclusions:

The industry's safety record, both in frequency and severity rates, is consistently improving.

A number of companies have been able to dramatically reduce the frequency of accidents in their operations.

Some companies have improved their records for each of the five years in the period covered by this study.

Many companies with very low accident rates at the beginning of the five year period kept them low throughout.

Several companies with very low rates to begin with were able to lower them still further.

5-Year Trends Compared

The electric utility industry's accident record during the five years improved more than the average record for all industry, but the over-all industry record is improving all the time and our industry still has much to do to catch up with the downward moving general average for all industry.

The greatest opportunity for our industry to equal and better the all-industry average lies in the improvement of the accident records of companies with higher than average frequency rates through the adoption of the practices used successfully by the many consistently low accident rate companies.

Improvement in Frequency Rate

The trend of fewer accidents in the entire industry is seen from the combined frequency rates of the past five years. Frequency rate is the measure of the number of lost time accidents for each million man-hours worked during the year.

Year	Frequency Rate
1950	11.96
1951	11.06
1952	11.06
1953	9.43
1954	8.62

The 1954 frequency rate shows a 28 per cent improvement over the 1950 figure, or in other words, more than one accident in every four that occurred in 1950 was prevented in 1954.

While the continuous moderate decline of the industry's frequency rate is encouraging, it is not reflected in the trend in all of the individual companies. This becomes apparent by examining company data that have been compiled into bar charts distributed by the EEI Accident Prevention Committee to member companies during each of the past five years. Accident reports were received for each of the five years from 185 electric utilities which included 127 member companies.

Variation in Companies' Experience

From the data for these EEI companies the graphs in Fig. 1 have been prepared. These charts shows the average frequency rates of the three highest companies in 1950, the three lowest companies for 1950, and all companies in each of six size groups. These charts, although indicating a declining trend for most of the group averages, emphasize the fact that the variation in accident frequency experience among companies is notable. This is evidenced by the wide range of the three high-rate and the three low-rate companies in almost every case. The charts also call attention to the success in most instances realized by the lowest rate companies in maintaining their favorable positions. This trend is less pronounced in small company groups where frequency rates are less stable. In small companies the occurrence of a single lost-time accident has a much greater effect on the company's frequency rate than would a similar accident in a larger company.

The top lines in the charts, in most instances, have combined the experience of companies whose accident frequency trends during the past five years have improved at a much greater rate than the industry's average, and the few whose records are consistently high. A few companies with high rates in 1950 experienced surprising increases during the succeeding years.

Continuous Reduction Records

Among those that have demonstrated by their performance the possibility of systematically reducing the frequency of accidents are 14 companies that have experienced a continuous reduction throughout the five-year period. The companies with these excellent records are:

Black Hills Power & Light Co.
The Cleveland Electric Illuminating Co.
Consolidated Edison Co. of New York, Inc.
Delaware Power & Light Co.
The Detroit Edison Co.
Indiana & Michigan Electric Co.
Interstate Power Co.

*Mr. Watkins served as secretary of the Accident Prevention Committee during most of the period covered by this analysis.

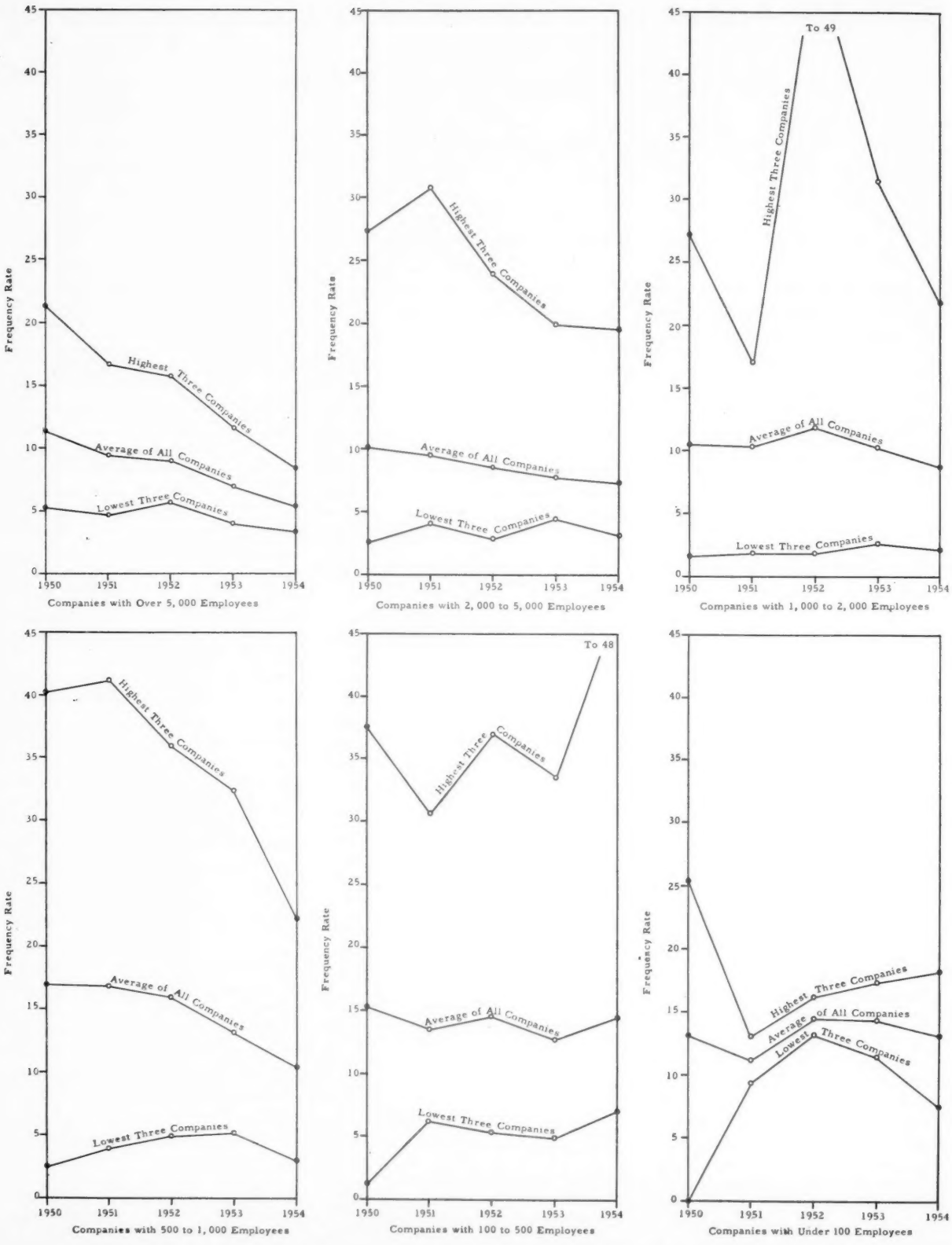

Fig. 1—Accident Frequency Rates of EEI Companies For Years 1950-1954

Iowa Power and Light Co.
Niagara Mohawk Power Corp.
Orange & Rockland Electric Co.
Pacific Gas and Electric Co.
Potomac Electric Power Co.
Rochester Gas and Electric Corp.
Southern Indiana Gas and Electric Co.

The Mississippi Valley Public Service Co. had no lost-time accidents throughout the period.

Fluctuation Effect

A large number of the companies between the two extremes shown on the charts experienced considerable fluctuation in accident frequency rates from year to year without any consistent trend. The records of these companies have a significant effect on the average for the electric utility industry and if they were to develop a definite downward trend it would greatly assist in improving the industry's standing.

Improvement in Severity Rate

In addition to the frequency rate another measurement of safety performance is the severity rate. This rate is the number of man-days lost due to accidents per each thousand man-hours worked. Time charges are calculated according to the ASA "Method of Compiling Industrial Injury Rates" which assigns a specific number of days to each lost time injury. Six thousand days are charged for each fatality. During the past five years the electric industry's severity rate has declined as has the frequency rate. This means that not only are fewer accidents occurring relative to the total exposure time, but that also fewer man-days are being lost per each thousand man-hours worked. The industry's severity rates by years:

Year	Severity Rate
1950	1.96
1951	2.00
1952	1.66
1953	1.55
1954	1.52

Another indication of safety per-

(*Continued on page* 310)

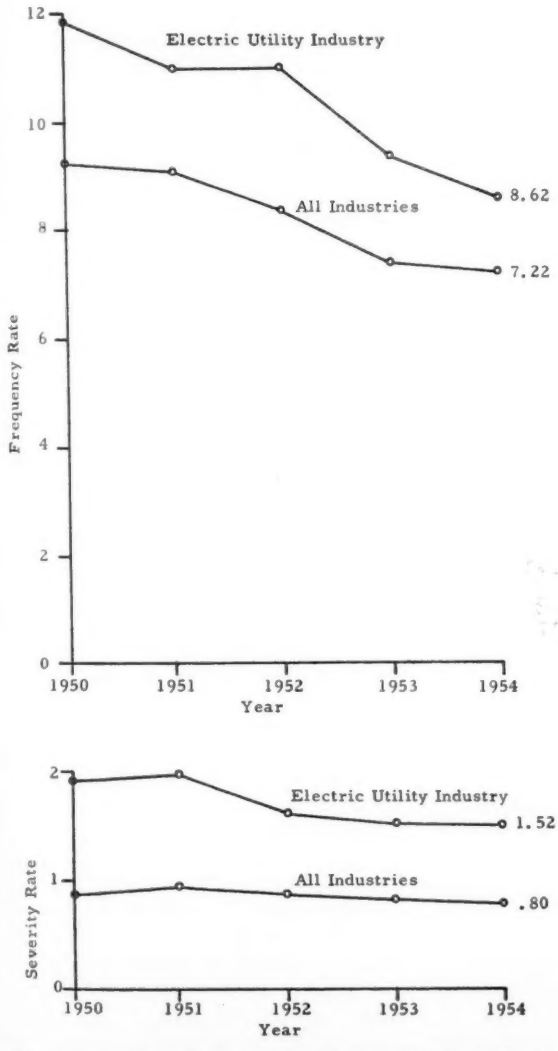

Fig. 2—Accident Rates of the Electric Utility Industry and All Industries for Years 1950-1954.

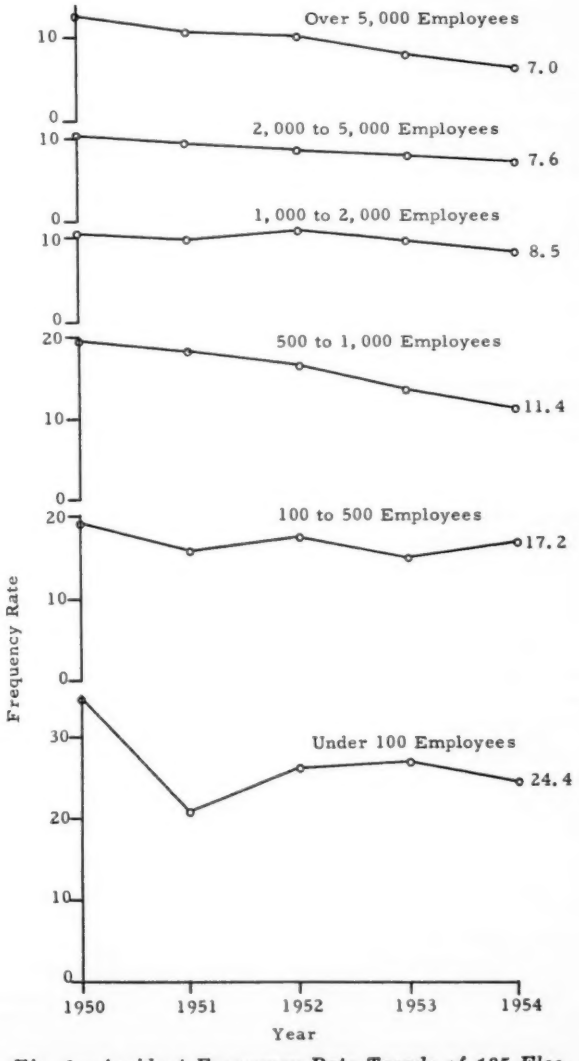

Fig. 3—Accident Frequency Rate Trends of 185 Electric Utilities by Size Groups.

EEI Prize Awards Competition for 1955

TWO new major prize competitions have been added this year to the list of those administered annually by the Edison Electric Institute. At present, 11 competitions offer 26 awards that honor individual and group achievement within the electric industry.

Both of the new awards are concerned with the lighting field. One is the Lighting Promotion Award which will cover promotional efforts; the other, the Better Light Better Sight Bureau Award, has as its special interest educational efforts. These two new awards replace the Planned Lighting Award which was discontinued this year.

Of the 11 awards, seven are in the commercial field. These, along with the Better Light Better Sight Bureau Award for lighting education, will be presented to winners at the 22nd Annual EEI Sales Conference to be held in Chicago, Ill., March 26-29, 1956. The other awards—the Coffin Award, the Reddy Kilowatt Annual Report Award, and the Claude L. Matthews Valor Award—will be presented to their respective winners at ceremonies that will be part of the 24th Annual EEI Convention, to be held in Atlantic City, N. J., during the first week of June, 1956.

Under the procedure inaugurated several years ago and to be followed again this year, five companies, chosen through a nomination and reviewing process, will be invited to compete for the Charles A. Coffin Award. From these companies, the Charles A. Coffin Award Committee will establish the winning company, after careful evaluation of the data relating to the accomplishments of the companies under consideration.

All prizes presented through the Edison Electric Institute are under the jurisdiction of the Prize Awards Committee chairmaned by George W. Ousler, Vice President, Duquesne Light Co., with the exception of the Coffin Award and the Reddy Kilowatt Annual Report Award.

The keynote of the seven 1955 sales contests and the Better Light Better Sight Bureau Award competition will be simplified entries. Four requirements for simplifying entries in these competitions were adopted following a survey of utility representatives which indicated that most companies favored such an action.

New Requirements for Entries

The new requirements for entries are as follows:

1. A one-page typewritten synopsis at the beginning of entry covering points under point 2 below.

2. Devote a section of entry to each point listed below. Use title page before each section. Samples may be shown in advertising section.

   A. *Background* — such pertinent information as: type and size of area served; number of customers in the market; brief comment on nature of territory as related to promotion; completion, if any.

   B. *Nature and objective of promotion.*

   C. *Participation*—by utility, sales allies, other industry, etc.

   D. *Advertising, promotion, display, and publicity.*

   E. *Results*—general and specific.

3. Entries should contain only those activities performed during the year ending December 31, 1955. Entries must not exceed 15 x 18 inches. All entries become the property of the Edison Electric Institute.

4. Unnecessary hand lettering, art work, elaborate arrangements, heavy expensive covers, are prohibited.

The following points are suggested for entries but not required:

1. Name of contest, classification, and name of submitting company (and individual) should appear on the cover of entry.

2. Number pages of entry.

3. Do not use original letters, etc., one to a page; use photostat reductions to save space.

4. Try for human interest, really descriptive photographs.

5. Limit number of pictures at dinners, meetings, etc., but get pictures that emphasize objectives of promotion, incidents, unusual features, etc., at such meetings.

A few minor changes in the 1955 terms and conditions of various awards have been made this year. These revisions are noted in the individual resumes of contest which follow. Additional information on the awards may be obtained upon request to the Secretary, Prize Awards Committee, Edison Electric Institute, 420 Lexington Ave., New York 17, N. Y.

Thomas W. Martin Award

The Thomas W. Martin Rural Electrification Award is presented for the greatest contribution to rural electrification and agricultural advancement in the area served by an electric operating company in the United States or Canada.

Established in 1932 by Thomas W. Martin, Chairman of the Board of Alabama Power Co. and a pioneer in rural electrification, it recognizes the ingenuity required to plan and conduct activities designed to assist the farmer in obtaining the greatest possible benefits from the use of electricity and also recognizes cooperative endeavors with other agencies in conducting agricultural development programs.

The award is a handsome bronze plaque upon which the winning company's name is engraved. Entries in this competition, the winner of which will be announced at the 22nd Annual EEI Sales Conference, must be postmarked or received by the Edison Electric Institute not later than midnight, February 15, 1956.

George A. Hughes Award

The George A. Hughes Awards recognize outstanding achievement in six categories of electric appliance sales and promotion to develop electric cooking and water heating loads. These appliance sales and promotion activities may be either directly or through dealers.

Separate awards are made for two divisions in each of the following classes of promotion: range, water heater, and commercial cooking. The divisions under these classes are Division A for companies with 250,000 or more total meters, and Division B for companies having fewer than 250,000 total meters.

Sponsor of the awards, which are offered to individuals of operating electric light and power companies in the United States, its possessions, and

Canada is the Hotpoint Co. They honor the late George A. Hughes, pioneer in the electric range field and from 1918 to 1943 head of the Edison General Electric Appliance Co., Inc., now known as Hotpoint Co.

In each of the six categories, the prizes consist of a trophy to the company and $200 to the individual or group. Presentation of the awards will be made at the 22nd Annual EEI Sales Conference. Entries for the George A. Hughes Awards must be received at the Edison Electric Institute or postmarked not later than midnight, February 1, 1956.

Laura McCall Awards

Public acknowledgment for outstanding home service work is afforded by the Laura McCall Awards which are sponsored by McCall's Magazine in memory of its founder. The prizes, which are made in three separate divisions to allow equal opportunity to Home Service personnel, are presented either to an individual or to an entire department of an operating electric light and power company.

For the first time this year an alternative qualification is listed for competition in Division A, which is open to the head of the Home Service Department who has ten or more assistants or whose company has 250,000 or more total electric meters. Previously, eligibility for the award in this classification was solely for over-all home service operations. This year, a specific activity may qualify for the competition.

As in the past, the Division B award, made to the head of the Home Service Department who has not more than nine assistants and whose company has less than 250,000 total electric meters, will be made for over-all home service operations or for a specific activity.

In Division C, three equal awards are made to three members of Home Service Departments of any size for individual achievement.

Each of the five prizes is an engraved bronze plaque and $200.

February 1, 1956, is the deadline for entering the Laura McCall Awards competition and all entries must be received by the Edison Electric Institute or postmarked prior to midnight on that date. The awards will be presented to the winners at the 22nd Annual EEI Sales Conference.

Better Light Better Sight Bureau Awards

Offered for the first time this year, the new Better Light Better Sight Bureau Awards for lighting education are an outgrowth of the Planned Lighting Awards which were discontinued in 1955. These awards have as their purpose the recognition of noteworthy educational activities which foster a better understanding of the relationship of light and sight.

Under sponsorship of the Better Light Better Sight Bureau, the award are offered to operating electric light and power companies in the United States, its possessions, and Canada. Two equal prizes are available—one for companies having 250,000 or more total meters, the other for companies having less than 250,000 total meters.

The first presentation of the Better Light Better Sight Bureau Awards will be made at the 22nd Annual EEI Sales Conference. The prizes in each of the two divisions will be an engraved bronze plaque upon which the winning company's name will be inscribed. All entries in this competition must be postmarked or received at the Edison Electric Institute not later than midnight, February 15, 1956.

Lighting Promotion Awards

Other awards that will be presented for the first time this year are the new Lighting Promotion Awards which are also an outgrowth of the Planned Lighting Awards. These awards, offered to operating electric light and power companies in the United States, its possessions, and Canada, will recognize outstanding lighting promotional activities in the residential and commercial-industrial markets.

In this competition, there are two awards. One is for residential lighting promotion activity, the other for commercial-industrial activity. Entries in the commercial-industrial division may cover both the commercial and industrial markets or one of them. In both divisions, the prizes are engraved bronze plaques upon which the winning companies' names are inscribed.

The Lighting Promotion Awards, for which entries must be received by the Edison Electric Institute or postmarked not later than midnight, February 15, 1956, are sponsorel by the General Electric Co., Sylvania Electric Products Inc., and the Westinghouse Electric Corp. They will be presented to the winners at the 22nd Annual EEI Sales Conference.

Frank Watts Award

This year three equal prizes will be offered in the competition for the Frank Watts Awards which have as their purposes to recognize promotional and sales efforts in rural areas and to encourage interest in the use of electrically-operated farm equipment as a means of improving agricultural productive efficiency.

Named in honor of Frank Watts, a well-known proponent of farm electrification and sponsored by Farm Journal, Inc., the awards are offered to operating electric light and power companies of the United States. The three equal prizes for the winners will be engraved bronze plaques and $200.

All entries in this competition must be sent to the Edison Electric Institute not later than midnight, February 15, 1956. The 22nd Annual EEI Sales Conference will be the scene of the presentation of these awards.

George Westinghouse Awards

Honoring George Westinghouse, one of the earliest promoters and one of the founders of the electric industry, the George Westinghouse awards are offered to recognize and stimulate outstanding performances in the promotion of automatic electric laundry equipment.

Operating electric light and power companies in the United States, its possessions, and Canada may compete for these awards, which consist of a trophy and $300 to the first-prize winning individual or group and a plaque to the company and $150 to the second-prize winning individual or group. Winners will receive their awards at the 22nd Annual EEI Sales Conference.

All entries must be postmarked or received by the Edison Electric Institute not later than midnight, February 1, 1956.

More Power to America Award

The More Power to America Award, which will be offered for the fourth time this year by General Electric Co., has the dual purpose of increasing creative, broad-scale industrial electrification activity among the United States' operating electric light

and power companies and of bringing recognition to the companies and individuals making the greatest advancement in this field.

At the 22nd Annual EEI Sales Conference, equal awards of engraved plaques and $250 will be presented to winners in two divisions, Division A which is restricted to companies with 250,000 total meters of more and Division B which is restricted to companies with less than 250,000 meters.

Entries should be sent to the Edison Electric Institute and should be postmarked not later than midnight, February 1, 1956.

Claude L. Matthews Valor Award

Acts of devotion to duty wherein extraordinary courage has been exercised in efforts to maintain important electric service or to restore service in the shortest possible time are recognized by the Claude L. Matthews Valor Award. This competition is open to operating electric light and power company employees in the United States, its possessions, and Canada.

The Valor Awards were established by Claude L. Matthews, President of the W. N. Matthews Corp., and now Vice-President of the W. N. Matthews Co., a division of the A. B. Chance Co.

Recommendations for this award must be made by the chief executive (or acting representative) of the electric operating company and forwarded to the Secretary, Prize Awards Committee, Edison Electric Institute, not later than February 1, 1956.

The deed of valor for which the recommendation is being made must have been performed during the year ending December 31, 1955.

Presentation to the winner (or winners) will be made at the 24th Annual Convention of the Edison Electric Institute. The prize is a handsome bronze medal with a citation and the sum of $150.

Reddy Kilowatt Annual Report Award

The Reddy Kilowatt Annual Report Award seeks—through encouraging operating electric light and power companies to simplify, dramatize and humanize their annual reports—to create greater stockholder interest and understanding of the company's past year's operations and to create better public relations among the stockholders by enabling them to better understand the problems and accomplishments of the company.

Administered solely by Reddy Kilowatt, Inc., the competition is open to all operating electric light and power companies. The award, consisting of a certificate and a handsomely engraved bronze plaque upon which the winning company's name is inscribed, will be presented at the 24th Annual EEI Convention. At the same time, certificates of Honorable Mention will be presented in each of four meter classifications.

Entrants should send six copies of their annual report completed for the past year, ending December 31, 1955, to Reddy Kilowatt, Inc., 50 Church St., New York 7, N. Y. Entries must be received not later than May 12, 1956.

Analysis of Five Years of Accident Experience

(*Continued from page* 307)

formance is the industry's fatality rate:

Year	Fatal Accidents per 1,000 Employees
1950	0.47
1951	0.51
1952	0.39
1953	0.37
1954	0.37

Over the five year period a generally decreasing trend is observed, but encouragement is tempered by the realization that one employee in every 3000 dies each year due to an accident.

While the electric utility industry shows marked progress in the field of accident prevention, other industries are also making substantial advances. As our industry's accident frequency average decreases, the all-industry average also improves. Fig. 2 shows the trends of accident frequency and severity rates for the electric utilities as compared with the trends of all industries. Although the rate of decline of the electric utilities frequency rate is considerable, the relative improvement compared with the average for all industry is not large. Of the 40 industries reporting accident rates to the National Safety Council, the electric utilities consistently retain a position of about twenty-fifth on frequency rate and in the thirties on severity rate. Notwithstanding the noteworthy accident prevention progress made by the electric utility industry since 1950, relative to the records of other industries, the advancment is less impressive.

To further analyze the accident experience of the industry during the past five years it is of interest to review the combined accident rates of utilities of somewhat comparable size. Of the 185 electric utilities that have reported statistics each year during this period, 14 have been organizations with over 5,000 employees; 33 with from 2,000 to 5,000 employees; 42 with 1,000 to 2,000 employees; 29 with 500 to 1,000 employees; 42 with 100 to 500 employees; and 25 with under 100 employees. While all of these groups have experienced reductions in frequency rates, the relative improvement has varied considerably. The greatest advancement has generally been made by the larger organizations.

Fig. 3 indicates that the reduction in frequency for utilities with over 5,000 employees has been outstanding. Their combined frequency rate is substantially below the average of all industries. The frequency rate experience of the other groups show over-all decreases, but with less consistent trends.

An analysis of the accident experience of the electric utilities for the past five years indicates an increasing consciousness throughout the industry of the necessity of continued effort in improving safety records. While progress by the electric industry has been distinct and encouraging, it is gaining only slowly on the record of all industry. A greater emphasis on the development of effective safety programs by companies with higher than average accident rates will undoubtedly contribute most to a more favorable industry average. The records of many companies have long since proven that substantial and consistent improvement is possible.

How to Enjoy the "Golden Age" of Retirement

By E. C. Stone

Former Vice-President and General Manager, Duquesne Light Company

THE most striking aspect of retirement is the radical change it produces in the life of the person who is retiring; generally it involves a more or less completely new way of life resulting primarily from a change in income—usually a reduction—and a change in occupation. There is an old proverb "fortunate is the man who can adapt himself readily to changing conditions"—and certainly the extent of the ability of a person who is retiring to adapt himself to change is the measure of the satisfaction and happiness he will get from life after retirement.

As one grows older he usually finds that he has less physical endurance and mental alertness than he had in his younger days. As he retires he should recognize these facts and not attempt to continue the pace he had set for himself before retirement. His activities and his objectives should be revised to conform to these limitations; otherwise he will almost inevitably experience much uphappiness and possibly shorten his life. If these limitations are accepted, however, there are so many interesting activities available to the retired man that his life after retirement can measure up satisfactorily to his life before retirement.

Developing "Side-Line" Activities

One difficult problem comes from the fact that so many men in industry concentrate their interest and attention on their work, and take too little interest in what is going on outside the job. When retirement comes these men are completely lost, at least for a while. The answer is to develop "side-line" activities; for example: in political, civic, educational or welfare activities, where a great deal of interest can be found and there is always work to be done. To this end, it is worthwhile to build and maintain as many personal contacts as possible, both preceding and after retirement. Perhaps the greatest fallacy prevalent with respect to retirement is that it provides opportunity for "a gay time of hunting and fishing" or "wonderful restful life in a rocking chair" which will make for a satisfactory and happy life after retirement.

Preparation for Retirement

Two matters especially should be given attention before the time of retirement—the longer before the better. These are:

1. Financial position after retirement.

2. Occupation and activities after retirement and where to live.

It is probable, although not always true, that after retirement one's income will be less than before. Of course, also, living expenses at retirement age are probably lower than previously—usually the children are all grown up and on their own, and the savings program can be discontinued. Certainly, special effort should be made to pay up the life insurance, pay off the mortgage if there is one, and pay up all installment purchase contracts before retirement.

Employees of Duquesne Light Co., who are under an established pension system, can forecast in advance of retirement about how much they will receive from the company pension and from social security. With this information, the retirement income can be determined and an estimate made of whether the proposed retirement plan can be carried out or must be revised. Obviously, if there is a deficit, either the plan must be changed or sufficient remunerative employment obtained. There are many opportunities for remunerative employment after retirement, but the possibilities of such employment should be explored in advance and a definite engagement made if possible before the retirement date has arrived. In any event, a program after retirement should be planned as long in advance as possible, and worked toward as the pre-retirement years roll by. It will be difficult to find as remunerative employment after retirement as was had before.

The second matter requiring attention in advance of retirement is the matter of occupation and activities after retirement and where to live. As suggested above, the first step in dealing with this subject is to broaden one's interests beyond the limits of the pre-retirement work and to develop interests in other lines of activity—both in the field of possible remunerative employment and in volunteer activities. There are so many activities going on all around us these days that everyone should be able to find some "side-line" that is of interest to him and in which he is qualified and would like to participate after retirement.

First, consider the possibilities for remunerative employment. It is desirable of course, but not essential, that an opportunity be found in which one can make use of his past experience. In many cases one finds himself qualified for work quite different from his pre-retirement occupation; for example, the basic skill of a successful foreman is management of men; management of men is subject to practically the same principles whatever the men may be doing, for they are all human beings.

Areas of Employment

Some of the areas in which one may find remunerative employment are as follows:

In organizations where retirement age is 70, or which have no established retirement policy. Included in this group are:

- Many smaller companies
- Much of the construction industry
- Non-profit organizations — trade associations for example
- Governmental organizations—Federal, state, municipal elective offices
- Sales opportunities
- Self-employment — maintenance and service work, use of specialized skills, organize one's own business
- Educational work
- Hobbies — Many persons have

found a practical application for their hobbies, particularly those involving arts and crafts or machine shop work, and have put them to good account in supplementing their retirement income.

Here are some specific examples of post-retirement remunerative employment: A life insurance salesman became a landscape gardener. A chief accountant in industry became a municipal tax-collector. A utility executive became a research engineer in civic development. An imaginative machinist combined mechanical ability with a passion for visiting auctions into a profitable enterprise—a "Swapshop, second hand fix-it and general Handy Andy" as he calls it.

A minor executive of a large manufacturer of electrical apparatus retired to his home town and opened up an appliance store. A secretary took a course in millinery and later started a small shop where she designed hats for middle-aged and elderly women. A former vice president of Westinghouse Electric is now an assistant secretary of defense in Washington.

In the field of volunteer activities, the opportunities for retired employees are almost endless, and include the following: Political—ward organization, election supervision, election campaigning, and so on; civic and welfare organizations; church activities; fraternal order services; retirement activity leadership; and educational activities.

Hobbies

"A real hobby is not just a pastime. It is an interest, something which absorbs and excites. Arising essentially out of a person's own nature, it is a response to a challenge and therefore a meaningful activity. It is pursued . . . out of sheer fascination."

In a recent Hobby Show for retired people, a man exhibited a collection of figures, carved from wood with a jack-knife, of Kentucky hillbillies engaged in various activities. In the two weeks of the show, he sold over $100 worth of these figures.

Even though many of these voluntary activities do not yield financial remuneration, they are well worth while because they provide for participation in constructive activity and opportunity for personal contacts. Thus they produce a definite feeling of worthwhileness. It is always rewarding to work with others toward a worthwhile objective.

The other part of the subject—where to live after retirement—is often a difficult matter to decide, and involves many factors. It is very advantageous to make the decision as to whether to remain in the home town or go elsewhere well in advance of the retirement date, and to get acquainted with the location in which the new home is to be located. Some people hold the old home long enough to be sure that they like the new home, so that they can come back to the home town if the new location does not work out as expected. If a new location is chosen, it pays to plan in advance the way in which the time will be spent in the new location. As pointed out above, probably the greatest fallacy prevalent with respect to retirement is that it provides opportunity for a life of idleness, which will make a satisfactory and happy life after retirement. Not many retired men in good health find this kind of a life satisfactory.

Community Analysis

If a move away from the home town is considered, it is suggested that an analysis be made of the advantages and disadvantages of the new location as compared with the home town. Some of the factors are as follows:

Home Town

FOR:

Know way around
Old friends and personal contacts
More opportunities for activities

AGAINST:

Higher cost of living
Climate (Health?)
Less favorable for relaxed living (Compared to Florida, for example)

New Location

FOR:

Climate (Health)
Economical living
Easy to make new acquaintances
More favorable for relaxed living

AGAINST:

Strange surroundings (Homesick)
Fewer opportunities for activities

Each individual case probably has other important points to consider, but the above list gives a start on a comparative analysis of whether a retired person should choose to remain in his home town or seek a new location.

In summary to enjoy the "Golden Age" of retirement:

(1) Plan well in advance, at least tentatively, the kind of life you will want to lead after retirement. Extend your interests beyond your immediate job, with a view to developing interesting and adequate activities after retirement. Contact and talk with people who might assist you in doing this.

(2) Give proper weight to the limitations of advancing age—physical endurance and mental alertness—do not try to keep the pace you kept before retirement, but live and work toward objectives that will create continuing interest and be within your limit for accomplishment. The older person who sits back in a corner dreaming of his former laurels is apt to be far more miserable than the one who will take whatever job he can find.

If these suggestions are followed, I am sure you will lay the foundation for continuing an interesting and satisfying life after retirement.

Forward Course

(*Continued from page* 304)

that will meet such challenges as automation and new forms of energy.

Similarly, on the social and political sides, a free society must see to it that the benefits derived from these great innovations are spread as widely as possible and that any burdens which may arise from their application are not concentrated in any one social group or area.

Future Challenges

The future that we are entering into has, then, challenges which will test our best thinking, our greatest initiative, our most steadfast efforts and the stoutness of our hearts. Personally, I have no doubt about this future if we keep ourselves free and if we are guided by the inspired words of the First Book of Corinthians which are so appropriate for our times, "Watch ye, stand fast in faith, quit ye like men, be strong."

A Privileged Class for America

(*Continued from page* 294)

cates of Socialism and authoritarian control to establish their purposes. To their legislative victories they have been adding, steadily and often surreptitiously, regulations and interpretations to implement their program.

Efforts to check this trend have not succeeded and will not succeed without a long and bitter struggle and without a much larger measure of clarity, cohesion, and courage than has yet been demonstrated by the tax-paying utilities and the 80 per cent of American electric power users they serve.

Surely it must be apparent that there is more at stake in restoring equality of opportunity in the power field than just the well-being of America's power companies. There is involved here the fundamental principle of equality of opportunity for all of the American people. The entire free enterprise system of America is threatened.

A Program to Restore Equality

The first step in curing this dangerously unwholesome situation seems clear to me. The statutes and regulations granting special privilege must be amended so as to restore fair play among all our citizens, and to assure that no state or region will be favored at the expense of another. Here are three amendments which will be necessary at the very start:

(a) Governmentally-owned and subsidized power groups should be required by law to pay Federal, state and local taxes (or the *full* equivalent thereof) the same as the investor-owned utilities and their customers.

(b) Governmentally-owned and subsidized-power groups should be required to charge rates, and repay to the government sums, which are adequate to cover the *true* cost of power including, in addition to full taxes and tax equivalents, the government's *actual* cost of money on the entire investment properly chargeable against the power business; and including an amortization rate that will actually return the money taken from the taxpayers who have become the involuntary contributors of capital for government-financed power projects.

(c) By-product electricity generated at government projects, whether from water power or steam and whether using atomic energy or other sources of energy, should be sold at its fair market value at the point of generation and, to avoid discrimination between citizens, it should be allotted to applicants in proportion to the number of rural, residential and commercial customers to be served. The government should not assume any responsibility for supplying power beyond that incidentally generated at projects serving legitimate governmental functions.

A howl of protest will be raised against such amendments by the beneficiaries of present discriminations. For in the discriminations which these amendments would at least partially eliminate lies the secret of the so-called "low-cost government power" about which the American public has been so badly bamboozled in recent years.

A fight against privilege is a thoroughly worthy and American endeavor especially when waged in behalf of so substantial a majority of our citizens as those in whose interest I speak today.

The question—the only question, as I see it—is whether there is left in America, and particularly in our own industry, the amount and quality of courage necessary to carry the battle to the enemy.

Fight for a Program

Let us adopt a program plainly equitable, and easy to understand. Let us then stand up and fight for it—before legislative committees, executive agencies, yes and on the public platforms and in the public forums of the nation, too—with a zeal and a cohesion which we have not always displayed. Let us do so in behalf, not of ourselves and our companies alone, but in behalf also of the 80 per cent of American electric customers who are becoming wearier and wearier of being taxed to pay the power bills of the 20 per cent minority.

The fight to which we are called is a just and honorable one. Will we accept the challenge—undismayed by the noisy demonstrations of the opposition and undisturbed and undeterred by the timidity and vacillations of those who should be our allies but who may desert when the going gets rough? In my opinion, the challenge can no longer be evaded by any of us—not even by those who may, for the moment, seem not to be threatened. Whenever the free enterprise system, and the freedoms it supports, is threatened anywhere in America, it is threatened everywhere.

Waste in Water

Hoover Commission Notes

(*Continued from page* 298)

private benefit of a favored few, would be branded a "crackpot," or, at the very least, a black reactionary" who wants to "turn back the clock to the horse and buggy days."

And this points up what I consider to be the basic issue involved in the work of the Hoover Commission. It is whether those who would socialize America will be suffered to continue on their way without major hindrance, as they have been doing during almost all of the past 22 years, or whether those of us who believe in individual freedom and individual personal responsibility will be able to stop them. The difficulty is that most of us are what the Chief calls "dinner-time conservatives." But when the gong taps for the opening of business the next day, we become "pseudo-liberals," who believe in government intervention in the economic lives of the people, especially where there is a preferred position to be gained for ourselves!

Ample Compensation

I have a final word to say about my Boss during these past hectic 18 months. I consider the privilege of having been associated with him to be more than ample compensation for my work and for being on the receiving end of the brickbats, tin cans, and dead cats which are already flying in my direction; and which I am now called upon to return, with interest. I believe that we have here a leader who can take us away from socialism and toward freedom. Let's grasp this opportunity. For time is fleeting! And let us remember that all of us owe an incalculable debt of gratitude to this man who is now revealed to us as the Noblest American of his time. Let's pay our debt in service to our country!

4th Area Development Workshop Scheduled

AN EEI Area Development Workshop, the fourth in a series of annual meetings that the EEI Area Development Committee has sponsored, is scheduled for the Sheraton Hotel, St. Louis, Mo., Oct. 10-12, 1955.

The 1955 Workshop will be patterned after last year's Workshop at Cleveland, Ohio, which attracted more than 100 persons from electric companies throughout the United States and Canada. The 1954 round table discussions were considered by many to be the most effective means of helping area development representatives exchange ideas and get information that would help them do a better job in their own areas. At least half of this year's Workshop will be devoted to round table discussion of topics suggested by a poll of the Area Development Committee.

Discussion Subjects

A series of keynote talks by distinguished speakers will be followed by discussion periods on the following subjects: Research—Basis for Direction in Area Development, Utility Efforts to Stimulate Community Leadership, Area Development Advertising, Industrial Districts and Foundations, Tourist and Recreational Promotion, What Industry Expects from the Utility Area Development Department, Building an Area Development Department, and Planning and Zoning from a Utility Standpoint.

Groups Rotated

The size of the discussion groups will be limited to 25 to 30 persons so that each participant will be given an opportunity for free discussion of the topics presented during the formal part of the program. Groups will be rotated so that all registrants at the Workshop will have an opportunity to participate in the various discussion groups planned for the Workshop.

J. W. McAfee, President, Union Electric Co. of Missouri, host company for the Workshop, will welcome participants to St. Louis at the opening luncheon scheduled for 12:30 p.m. on Oct. 10. He also will speak on "The Collateral Advantages of Area Development." The success during the past several years of the Union Electric Co.'s community development program should heighten the Workshop participants' interest in Mr. McAfee's remarks.

Keynote Speakers

Keynote speakers at the conference will include: Dr. Paul Brann, Director of Business Research Center, University of Arkansas; C. M. Wallace, Vice President, Georgia Power Co.; Victor Roterus, Chief of Area Development Division, U. S. Department of Commerce; Horace L. Brewer, Director of Industrial Development, Consumers Power Co.; Richardson Wood, Richardson Wood and Co.; R. H. Bridges, Manager, Advertising Department, The Cleveland Electric Illuminating Co.; and Brig. Gen. John R. Hardin, Division Engineer, Lower Mississippi Valley Division, Corps of Engineers, U. S. Army.

(*Continued on page* 320)

Companies Earn 20 Safety Merit Awards

TWENTY EEI Safety Merit Awards, five of which were for entire companies or entire systems, were awarded during the period between July 15 and September 15, 1955.

The entire company award for 1,411,800 accident-free man-hours made to The Cleveland Electric Illuminating Co. was its eighth entire company award. This is the largest number of entire company awards won by any one company.

Texas Power & Light Co. is the nearest competitor in the number of entire company awards. One of its six entire company awards is for five million accident-free man-hours, the largest number of accident-free hours of operation by any one entire company in the system. Each of the awards to The Cleveland Electric Illuminating Co. have been for one million man-hours.

Since the inception of the EEI Safety Merit Award in 1943, a total of 68 awards have been made to an entire company. Of these awards, 59 have been for one million, seven for two million, and one each for three and five million.

The EEI Safety Merit Awards made during the period between July 15 and September 15, 1955, were as follows:

Appalachian Electric Power Co.,	
Bluefield Division	1,008,739
Baltimore Gas and Electric Co.,	
Electric Distribution Dept.—Overhead Division	1,204,287
The Cincinnati Gas & Electric Co.,	
Electric Production Dept.	1,000,752
The Cincinnati Gas & Electric Co.,	
Electric Production Dept. —Miami Fort Station.	1,001,511
The Cleveland Electric Illuminating Co.,	
Electrical Operation & Engineering Group	1,000,000
The Cleveland Electric Illuminating Co.,	
Entire Company	1,411,800
The Cleveland Electric Illuminating Co.,	
Steam Power Division	1,000,000
Consolidated Edison Co. of New York, Inc.,	
Distribution Operation—Service Bureau	1,000,000
Consumers Power Co.,	
Grand Rapids Division	1,063,617
Saginaw Division	1,072,139
Dallas Power & Light Co.,	
Plant Dept.	1,018,372
Florida Power Corp.,	
Entire Company	1,007,280
Ocala Division	1,000,298
Indianapolis Power & Light Co.,	
Power Production Dept.	1,002,220
Philadelphia Electric Co.,	
Entire System	1,002,898
Entire System	1,069,880
Public Service Electric and Gas Co.,	
Marion Generating Station	1,001,121
Southern California Edison Co.,	
Entire Company	1,350,826
Distribution Division	1,175,860
Redondo Beach Steam Generation Plant	1,000,082

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53-2—Electric Light and Power Industry, 1952 (1953)	1.00	1.00
52-2—Electric Light and Power Industry, 1951 (1952)	1.00	1.00
51-2—Electric Light and Power Industry, 1950 (1951)	.75	.75
50-2—Electric Light and Power Industry, 1949 (1950)	.75	.75
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A detailed price list covering the following is available upon request to the EEI Commercial Department. This price list also contains information on other available Commercial Materials.

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53-6—Area Development Suggestions, #3, 1953	.30	.75
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Over 10 copies	.75	1.00
Quantity prices upon request.		
Home Service Exchange Yearly subscription	1.00	1.50
One free copy to members upon request.		

Personals

A. F. Tegen, President, General Public Utilities Corp., has announced that **Charles E. Kohlhepp,** President, Jersey Central Power & Light Co., has been elected President and a Director of New Jersey Power & Light Co. succeeding **Hugh C. Thuerk,** who becomes Executive Vice President and continues as a Director of the company. At the same time, Mr. Tegen announced that Mr. Thuerk has been elected a Vice President and a Director of Jersey Central Power & Light Co.

Mr. Kohlhepp resigned as president of Wisconsin Public Service Corp. to become president of Jersey Central Power & Light Co. on April 1, 1955. Mr. Thuerk became president of New Jersey Power & Light Co. in 1943 after serving for two years as president of the Bradford Electric Co., Bradford, Pa.

Harllee Branch, Jr., President, Georgia Power Co., and President, Edison Electric Institute, has been named by the United States Chamber of Commerce to membership on its 31-man policy committee.

M. L. Kapp, President, Interstate Power Co., has been elected President of the North Central Electric Association to succeed **J. F. Owens, Jr.,** Vice President, Northern States Power Co. Elected as Vice President of the organization of utilities serving Minnesota, North and South Dakota, and portions of Wisconsin, Iowa, and Montana was **Howard W. Cooper,** Vice President, Minnesota Power & Light Co.

John F. Bierne, Vice President, has been elected President of Northern Pennsylvania Power Co., a subsidiary of General Public Utilities Corp., succeeding **David R. Smith,** who has retired after 44 years in the electric industry. Mr. Smith will retain his position as a Director of the company.

Mr. Bierne, who has held positions in the Operating and Sales Departments of the company since 1925, was elected vice president two years ago. He also has been associated with Public Service Electric & Gas Co. and has worked in Cuba for American & Foreign Power Co., Inc.

Joseph A. Pagé, Vice President and General Manager, Southern Canada Power Co., has been elected President of the 1,300-member Canadian Electrical Association for 1955-56. The new Vice Presidents, elected for the same period, are: **A. C. Abbott,** Manager, Commercial and Distribution Department, Shawinigan Water & Power Co.; **V. A. Ainsworth,** General Manager, Newfoundland Light & Power Co.; and **J. C. Dale,** General Manager, Canadian Utilities, Ltd.

The new CEA president has spent his entire business career with company. He joined Southern Canada in 1918 and was the company's first apprentice. He worked through a succession of positions until 1948 when he was named assistant general manager. Four years later, Mr. Pagé became general manager. He was made vice president and director in 1953.

W. C. McWhinney, Vice President, Southern California Edison Co., has retired after 46 years of service with the electric utility industry. Prominent for many years in public affairs and the legislative life of California, Mr. McWhinney first became associated with the electric industry when he joined the Pacific Light and Power Co. in 1909.

When a new source of electric power was needed for Los Angeles, Mr. McWhinney aided in compiling a vast amount of data on the then proposed Big Creek hydroelectric project on the San Joaquin River in the High Sierra. The Pacific Light and Power Co. later formed a New Business Department and Mr. McWhinney was named assistant to the new superintendent of sales. In 1917 he became a member of the Edison organization upon consolidation of the two companies.

Holding many positions of responsibility with Edison in both the commercial and public relations fields, Mr. McWhinney first served the company as assistant to the superintendent of sales and worked through a succession of positions until 1951 when he was elected a vice president.

Mr. McWhinney's varied experience with Edison included a close association with the agricultural problems of Southern California.

Three Vice Presidents of Gulf States Utilities Co. have been designated Executive Vice Presidents. They are **William R. Bell, H. C. Leonard,** and **J. J. Morrison.**

Mr. Bell has been operating vice president of the company since 1947. Previously he was general superintendent for Gulf State, and had served in various capacities with El Paso Electric Co., Haverhill Gaslight Co., Baton Rouge Electric Co., and Paducah Light and Power Co. He is a graduate of Rose Polytechnic Institute.

Mr. Leonard, a graduate of Worchester Polytechnic Institute and Union College, began his career with Stone and Webster in 1920. He was employed in Virginia before joining El Paso Electric Co. as general superintendent. He joined Gulf States in 1935 and the next year became director of Louisiana operations for the company.

Mr. Morrison was assistant to the president before being named vice president of the company in 1954. A graduate of Nova Scotia Technical College, he was employed by Nova Scotia Tramways and Power Co. before joining Stone and Webster Corp. His career has included employment with Savannah Electric and Power Co. and Engineers Public Service Co.

Edwin I. Hatch, Attorney, has been named a Vice President of Alabama Power Co. where he will have supervision of the Land Department.

Mr. Hatch has had 19 years' experience in the legal and corporate affairs of the company and at the time of his election was a partner in the firm of Martin, Blakey, and Hatch. He is a graduate of the University of the South and the University of Alabama.

J. A. Keeth, Manager of Production, Kansas City Power & Light Co., since 1934, has been named a Vice President and assigned to special engineering duties.

Mr. Keeth will be in charge of con-

structing the Montrose Station in Henry County, Mo., and also will engage in engineering studies in connection with a nuclear power project in which the company is associated with other utilities in Nuclear Power Group, Inc.

An engineering graduate of Illinois Tech, Mr. Keeth joined the company in 1919 in the Production Department and served as assistant to the manager of production from 1924 to 1934.

A member of long standing on the EEI Prime Movers Committee, he is a life member, former director, and a fellow in the American Society of Mechanical Engineers, and is a member of the Power Generating Committee of the Association of Edison Illuminating Companies, the National Society of Professional Engineers, and Tau Beta Pi.

Claire Titus, Assistant to the President, Arizona Public Service Co., has been elected a Vice President of the company.

During his 18-year career in the utility industry and allied fields, Mr. Titus has been associated with Idaho Power Co., U. S. Bureau of Reclamation, Cascade Machinery Co., and Pacific Gas and Electric Co. He is a graduate of Polytechnic College of Engineering.

Since joining Arizona Public Service in 1950, Mr. Titus has filled the positions of sales consultant, commercial and industrial sales manager, special assistant to the vice president, and assistant to the president.

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Electric Industry Coordinating Group Backs ACTION Improvement Program

THE indorsement by the electrical industry of ACTION's program of nationwide improvement of American living conditions has been announced by J. Reed Hartman, chairman of the Electrical Industry Coordinating Group. ACTION—the American Council to Improve Our Neighborhoods—estimates $10 billion of electrical improvements are needed to bring the country's substandard housing up to minimum requirements.

The $10 billion market, which includes $1 billion for modern street lighting, is part of the $100 billion investment by the American public that ACTION's staff considers necessary to eliminate slums during the next 10 years. This investment is in addition to current expenditures for housing and repairs.

According to ACTION's field service director, David C. Slipher, 60 per cent of electric utilities have contributed to the program.

ACTION's president, Maj. Gen. Frederick A. Irving, said of the program: "ACTION's program is designed to help Americans help themselves. We hope to alert every citizen to the dangers of housing decay, both economic and social, and to cooperate with all types of national organizations and community groups in stopping the spread of blight. No attempt will be made to duplicate or replace other organizations. Rather we seek to join forces with all those who share our concern for America's future."

Malcolm Morrisson, Assistant to the President and Head of the Municipal Department, Oklahoma Gas and Electric Co., has been elected Vice President. Succeeding him in his former position is **Herbert L. Branan,** Special Attorney for the company.

Before joining the OG&E Municipal Department in 1934, Mr. Morrisson was a banker and had served three terms as mayor of Bristow, Okla. He was named head of the department in 1939 and assumed the additional duties of assistant to the president 11 years ago. In both positions he has been charged with the responsibility of city franchises and franchise renewals. Mr. Morrisson is past president of the Oklahoma Utilities Association.

Mr. Branan, who joined the company as a special attorney in 1944, was graduated from the University of Oklahoma Law School in 1938. He served three terms in the State House of Representatives, where he was chairman of the revenue and taxation committees. Since joining OG&E, he has worked on many of the company's legal problems but during the past few years has devoted a great deal of his time to municipal relations and franchises.

Joseph F. Miller, Assistant Managing Director of the National Electrical Manufacturers Association, has been appointed Managing Director of the Association to succeed **William J. Donald** who has retired.

Mr. Miller joined NEMA in 1953 as recording secretary of the Wire and Cable Section. Prior to that he had been director of the Copper Division, Metals and Minerals Bureau, of the National Production Authority, Department of Commerce, since September, 1952. He was appointed deputy director of the Copper Division in July, 1952, and also served as deputy assistant administrator of the Metals and Minerals Bureau. Before being assigned to the Copper Division, Mr. Miller had been an attorney in the Office of the NPA General Counsel, where he specialized as counsel for the Copper Division and the Tin, Lead, and Zinc Division. From 1942 to 1946 he was counsel for Defense Plant Corp., a subsidiary of the Reconstruction Finance Corp. In 1946 he was appointed director of the Legal Division, Regional Office for Real Property Disposal of the War Assets Administration, but resigned to re-enter private law practice during the same year. A graduate of Princeton University and Harvard Law School, Mr. Miller was admitted to the New York State Bar in 1932 and immediately engaged in private law practice in New York City.

Mr. Donald, who has retired after

almost 21 years with NEMA, started as managing director when he joined NEMA in 1934. Under his guidance the Association grew in size and prestige until today it has 571 members, among them almost all the major electrical manufacturers. Mr. Donald has been active in the U. S. Chamber of Commerce and the National Industrial Conference Board and was one of the originators of the Advisory Council on Federal Reports.

H. P. Forman, formerly Information Manager of the New York Telephone Co., has joined the staff of Puget Sound Power & Light Co. in the newly-created position of Assistant to the President.

After graduating from Harvard in 1934, Mr. Forman worked as a newspaper reporter before moving into the advertising and sales promotion field with the Crowell Publishing Co. He spent the next two years with the Western Electric Co. and subsequently joined the New York Telephone Co. where since 1948 he has served as information manager.

For three years Mr. Forman was a member of the National Advertising Council and director of the House Magazine Institute of New York.

C. **Evan Parks** has joined Iowa Southern Utilities Co. as Assistant to the Executive Vice President and will be responsible for the company's Engineering and Operating Departments. For the past 22 years, Mr. Parks has been an engineer with Public Service Co. of Indiana.

William A. Hibbert, Assistant Treasurer, has been elected Treasurer of Delaware Power & Light Co. to succeed the late **Edward L. Stack.** Replacing Mr. Hibbert as Assistant Treasurer is **Joseph M. Regelski,** Statistician.

Richard O. Whitman has been elected Treasurer of the American Gas and Electric Co. and all of its subsidiary operating companies. He previously was assistant treasurer of these companies.

Mr. Whitman, who joined AGE in 1954, was formerly associated with the New York certified public accountant firm of Niles & Niles. He is a graduate of New York University.

For achievement as a "pioneer and leader in the field of farm electrification," **Herman J. Gallagher,** General Farm Service Supervisor, Consumers Power Co., has received Michigan University's Centennial Award and citation. The award was presented by T. K. Cowden, Dean of the College of Agriculture, at the University's Centennial of Farm Mechanization.

At West Penn Power Co., recently announced promotions include those of **Robert A. Mycoff,** Operations Engineer, who has been named Manager of Power Production; **John A. Mueller,** Manager of Policy Administration, named to the new position of Executive Assistant to the President; and **A. J. Lois,** Assistant to the President, who is the new Manager of Operating and Maintenance Standards.

As manager of power production, Mr. Mycoff will be responsible for operation, maintenance, and minor construction at West Penn's generating stations. A Cornell graduate, he has accumulated a wide range of power station experience since he joined West Penn in 1946. He was superintendent of Milesburg Station from 1950 to 1952, and assistant superintendent of Springdale Station from 1952 to 1954 when he was transferred to the general office as Power Department operations engineer.

In his new position, Mr. Mueller will assist in all types of general staff work and represent the president's office in matters of administrative detail. He will continue his policy administration program and assist in coordination activities. A 28-year veteran with the company, Mr. Mueller joined the Sales Department as a salesman and rose to the post of residential and commercial sales manager through a variety of jobs in both residential and commercial sales promotion.

Mr. Lois will head the renamed Operating and Maintenance Standards Department, the scope of which includes headquarters lines and substations personnel as well as the establishment and publishing of lines, substation, and communications operating standards. Mr. Lois joined the company in 1924 as a draftsman, became an engineer in 1927, and assistant to the manager of lines in 1943. In 1944 he was named assistant to the vice president and for the past eight years has been assistant to the president.

Albert L. Turner, Control Operator at West Penn Power Co.'s Mitchell Station, has been made Chief Engineer of the station. With West Penn Power since 1927, when he started in the Efficiency Department at Springdale Power Station, Mr. Turner began his operating career at Springdale in 1934. He assumed his former position when he moved to Mitchell in 1948.

Personnel changes at The Connecticut Light and Power Co. recently announced include the following:

Edward E. Johnson, Meter Foreman, has been promoted to Safety Coordinator. Mr. Johnson, who will be in charge of planning and coordinating the company's safety program, joined CL&P in 1932 as a meter tester.

Anthony E. Wallace, Area Development Representative, will fill the position of Director of Public Infor-

Wisconsin Meeting

The meeting of the Electric and Gas Section of the Wisconsin Utilities Association will be held October 12-14, 1955, at the Schroeder Hotel in Milwaukee, Wis. Dates for the meeting appeared incorrectly in the listing of "Conventions and Meetings" in the August BULLETIN.

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mation. Before joining CL&P in 1952, Mr. Wallace was assistant director of the research and planning division of the Connecticut State Development Commission for seven years.

George G. Hanel, Advertising Manager, has assumed the duties of Manager of the Advertising and Publicity Department.

Donald S. Valden, Sales Promotion Manager, will become Area Development Representative.

Boardman G. Getsinger, Copy Supervisor, has been named Sales Promotion Manager.

Raymond E. Donovan, copywriter, has been promoted to Copy Supervisor.

At Philadelphia Electric Co., **Wilson Grant,** Cost Supervisor, has been appointed Superintendent of the company's newly created Materials Control Division. He will be responsible for the direction of a standardization and control program for the company with which he has been associated since 1916.

Appointment of **Richard H. Peterson** as General Counsel and **Frederick T. Searls** as General Attorney has been announced by Pacific Gas and Electric Co.

As general counsel, Mr. Peterson will have general charge of the company's Law Department and will be responsible for handling all proceedings and matters of a legal nature. He joined PG&E as an associate attorney in 1947 and was appointed assistant general counsel last year.

Mr. Searls joined the PG&E Law Department in 1936, was named rate attorney in April, 1954, and four months later was appointed assistant general counsel. He will assist in the administration of the Law Department and will have direct responsibility for proceedings before the state and Federal regulatory bodies and a number of legal matters specifically assigned in his appointment.

Miss Frances Maness has joined Virginia Electric and Power Co. as Home Service Director. In her new position, Miss Maness will supervise the activities of Cepco's staff of 29 home economists.

Miss Maness, a graduate of East Carolina Teachers College, has taught home economics in the North Carolina public schools, served as home demonstration agent for the North Carolina Extension Service, and has been home economist for the R. F. Trant Co. and Frigidaire Sales Corp.

At Northern States Power Co., **Nathan S. Haw** has been made Manager of Rural Development. For the past four years, Mr. Haw has been director of the Minneapolis Chamber of Commerce's Agriculture Department.

George M. Oldham, Chief Engineer of Duquesne Light Co.'s Colfax Power Station, has been appointed Superintendent of Shippingport Power Station, the nation's first full-scale atomic power plant which is to be completed in 1957. Mr. Oldham will receive atomic power plant training until the new plant has been completed. Succeeding him at Colfax Power Station is **Philip H. Barnes** who was formerly Boiler Engineer at Phillips Power Station.

A graduate of West Virginia University who has done post graduate work at the University of Pittsburgh, Mr. Oldham joined the company in 1927 as a test engineer in the Power Stations Department. Later he was made assistant to the chief engineer at Colfax Power Station, then technical engineer. He moved to Reed Power Station as assistant to the chief engineer in 1945. In 1950 he was named to the position which he held at the time of his recent appointment.

Mr. Barnes, who is a veteran of 27-years service with the company and a graduate of Johns Hopkins University, was first employed by the company as an apprentice engineer. He held a succession of positions of increasing importance prior to being named boiler engineer at Phillips Power Station in 1945.

In personnel changes in the Sales and Development Departments of Mississippi Power & Light Co., the following promotions have been announced: **J. J. Powell,** Residential Sales Manager, to Assistant General Sales Manager; **E. D. Kenna, Jr.,** to Residential Sales Manager; **Al W. Hardin,** Assistant to the General Sales Manager, to Sales Promotion Manager; and **Tom B. Worley,** to Community Development Coordinator.

PUAA Representatives Named for Work with EEI Committee

FOR the third consecutive year the Public Utilities Advertising Association has appointed representatives to work with the EEI Residential Promotion Committee in developing coordinated program materials.

The value of this close teamwork with representatives of the advertising association has shown itself in the expanded use of coordinated program materials and themes. Because this coordination seeks to offer themes and materials for use by all electric utilities in developing their local campaigns, working with PUAA has permitted the Residential Promotion Committee to offer ideas and materials which can be used across the board in newspaper advertising, television, radio, and other media, as well as in dealer promotion work.

This year the representatives appointed by the president of PUAA are working with the following subcommittees:

Robert Bridges, The Cleveland Electric Illuminating Co., PUAA Coordinator; James J. Brady, Rochester Gas and Electric Corp., Freezer Subcommittee; Herb Briggs, Duquesne Light Co., Dryer Subcommittee; Carl D. Grace, Philadelphia Electric Co., Small Loadbuilders Subcommittee; George Lamason, Kentucky Utilities Co., Range Subcommittee; and Paul Penfield, The Detroit Edison Co., Water Heater Subcommittee.

Workshop Scheduled

(*Continued from page* 314)

Charles Evans, Administrative Assistant, Arkansas Power & Light Co., will address the group at a dinner meeting to be held at 6:15 p. m. on Tuesday, October 11.

M. E. Skinner, Union Electric Co. of Missouri; W. H. Kennedy, Jr., Arkansas Power & Light Co.; J. Eugene Johanson, Union Electric Co. of Missouri; R. K. Baeratt, The Empire District Electric Co.; and John R. Frederick, Wisconsin Power and Light Co., will preside at the various meetings held in connection with the Workshop.

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(Terms expiring 1958)

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Customer Relations, H. F. MARTIN.....Long Island Lighting Co., Mineola, N. Y.
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Special Service Group, F. C. PESVEYC.....Public Service Electric and Gas Co., Newark, N. J.

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Meter and Service, GEORGE J. YANDA.....The Cleveland Electric Illuminating Co., Cleveland, Ohio
Prime Movers, JOHN M. DRISCOLL.....Consolidated Edison Co. of New York, Inc., New York, N. Y.
Transmission and Distribution, GEORGE H. FIEDLER.....Rochester Gas and Electric Corp., Rochester, N. Y.

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Accident Prevention, RAYMOND W. WHITE.....Pacific Gas and Electric Co., San Francisco, Calif.
Area Development, JOHN R. FREDERICK.....Wisconsin Power and Light Co., Madison, Wis.
Atomic Power, EDGAR H. DIXON.....Middle South Utilities, Inc., New York, N. Y.
Electric Power Survey, ARTHUR S. GRISWOLD.....The Detroit Edison Co., Detroit, Mich
Financing and Investor Relations, W. J ROSE.....American Gas and Electric Co., New York, N. Y.
General Division Executive Committee, D. S. KENNEDY.....Oklahoma Gas & Electric Co., Oklahoma City, Okla.
Industrial Relations, JOHN C. ARNELL.....Consolidated Edison Co. of New York, Inc., New York, N. Y.
Insurance, R. D. CONSTABLE.....Niagara Mohawk Power Corp., Syracuse, N. Y.
Legal, D. BRUCE MANSFIELD.....Ohio Edison Co., Akron, Ohio
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Purchasing and Stores, W. M. HOLLS.....Baltimore Gas and Electric Co., Baltimore, Md.
Rate Research, C. A. WILLIAMS.....The United Illuminating Co., New Haven, Conn.
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Research Projects, C. W. FRANKLIN.....Consolidated Edison Co. of New York, Inc., New York, N. Y.
Statistical, F. A. KEANE.....Public Service Electric and Gas Co., Newark, N. J.
Tax Policy, (TO BE ANNOUNCED)
Technical Assistance for Overseas Visitors, HARVEY BAUMGARDNER.....The Detroit Edison Co., Detroit, Mich.
Transportation, RANDOLPH WHITFIELD.....Georgia Power Co., Atlanta, Ga.

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